

Decision Document

**Solid Waste Management Unit B-09
Building 101-32 Catchment Pit
Hawthorne Army Depot
Hawthorne, Nevada**



July 2000



Hawthorne Army
Depot



Decision Document SWMU B-09

July 2000

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ENVIRONMENTAL PROTECTION

The selected remedy is protective of human health and the environment. It has been shown that a complete pathway to human health and the environment does not exist, and there is no potential for an exposure pathway to be completed in the future.

U. S. Army

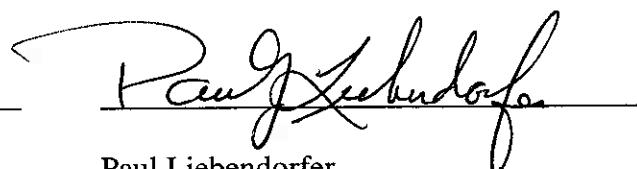
24 JUL 2000



Anne L. Davis
Lieutenant Colonel, U.S. Army
Commanding

State of Nevada

04 August 2000



Paul Liebendorfer
Chief, Bureau of Federal Facilities

Decision Document

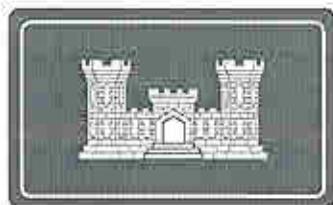
**Solid Waste Management Unit B-09
Building 101-32 Catchment Pit
Hawthorne Army Depot
Hawthorne, Nevada**



July 2000



Hawthorne Army
Depot



**Decision Document
SWMU B-09
Building 101-32 Catchment Pit
HAWTHORNE ARMY DEPOT
HAWTHORNE, NEVADA**

1.0 Introduction:

This decision document describes the rationale for the proposed closure of SWMU B-09, building 101-32 catchment pit, at the Hawthorne Army Depot (HWAD), Hawthorne, Nevada. This document was prepared by the U.S. Army Corps of Engineers, Sacramento District, with the help of HWAD for the Nevada Department of Environmental Protection (NDEP).

Tetra Tech, Inc. (Tt), and Ecology and Environment (E&E) were tasked by the US Army Corps of Engineers, Sacramento District (USACE), to perform remedial investigations and ground water monitoring at the Hawthorne Army Depot (HWAD), Hawthorne, Nevada. These tasks were conducted from 1993 through 1997, primarily at solid waste management units (SWMUs) designated by the Army and the Nevada Division of Environmental Protection (NDEP). The NDEP is the lead regulatory agency for environmental issues at HWAD. The purpose of the sampling was to determine the extent and degree of environmental impacts, if any, associated with activities performed at each SWMU. The primary goal of the investigation was to assess the environmental impacts and to report the findings, present conclusions, and recommend any remediation, if necessary.

With guidance from the NDEP, basewide proposed closure goals (PCGs) for soil were established as acceptable levels so that SWMU closure could be recommended and to assist in directing the investigative efforts toward those SWMUs where the target analytes were of greatest concern (Appendix A). These PCGs were used as action levels throughout this investigation and are used for comparison with the detected analytes in this report.

2.0 Site History

SWMU B09 is in HWAD's central magazine area, on the southeast side of the 101 Production Area (Figure 1-1). SWMU B09 is a series of three inactive unlined surface catchment pits located 50 feet east of Building 101-32 (Figure 1-2). These pits measure approximately 100 feet wide by 155 feet long and are up to 8 feet deep. The three interconnected pits consist of one smaller pit, and two larger adjacent pits connected by a low weir. A fourth catchment pit was later included by the USACE and HWAD as part of this SWMU B09. This pit is south of Building 101-55, to the north of the pits at Building 101-32 (Figure 1-3). The pit is approximately 5 feet wide, 25 feet long, and four feet deep in the center.

The USACE, HWAD, and the NDEP agreed to define the boundaries of each SWMU using annotated monuments and survey pins. As part of E&E's 1997 field investigations, two survey monuments were constructed and surveyed at the Building 101-32 pits and at the Building 101-55 pit. A brass survey pin on each of the monuments designates the monument numbers HWAAP-76-1996 and HWAAP-77-1996 and the SWMU number B09. Three corner pins were set and surveyed at each monument to define the SWMU boundaries, with the monument at the northwest corner at the Building 101-32 pits and at the southwest corner at the Building 101-55 pit. The location of these corner markers and the SWMU boundaries are shown on Figures 1-2 and 1-3. Survey data is presented in Appendix B.

3.0 Site Conditions

The catchment pits at SWMU B09 reportedly were in operation from 1940 to the early 1970s and received large amounts of reactive hazardous wastewater containing TNT and cyclotrimethylenetrinitramine (RDX). USAEHA estimated the depth to ground water in the vicinity of SWMU B09 at approximately 120 feet below ground surface (bgs) in 1987 and 1988 (USAEHA 1988).

Soils encountered during E&E's remedial investigation of SWMU B09 were primarily silts, which graded to silty sands beneath the catchment pit. A dark reddish-brown coloration was noted in the subsurface soils at this SWMU. However, the coloration appeared to be natural, and no obvious evidence of bulk or concentrated explosives contamination (staining) was observed (E&E 1995).

Based on the past uses of the pit and observations during the previous site inspections, the target analytes are explosives and metals.

4.0 INVESTIGATIONS

Site inspections of SWMU B09 were conducted by the USAEHA (1988), Jacobs Engineering (1988), and RAI (1992). During these inspections stained soil was noted in the catchment pits. No investigation activities were conducted during these inspections, and no samples were collected from the SWMU.

Sampling activities proposed by E&E for the remedial investigation at SWMU B09 included collecting and analyzing surface and subsurface soil samples. Based on the designated target analytes, all soil samples collected during this remedial investigation were analyzed for metals, explosives, picric acid, nitrate, and pH. Seven surface soil samples and five near-surface soil samples were collected from five sample locations (HA01 through HA05) within the three catchment pits at Building 101-32. The subsurface investigation at SWMU B09 consisted of two CPT soundings and two sample borings drilled adjacent to and on the downgradient side of the catchment pit. Both a

CPT sounding boring and a CPT sample boring were drilled at each location, CPS01 and CPS02, shown on Figure 3-1. The soundings at CPS01 and CPS02 were advanced to total depths of 55 feet and 59 feet, respectively.

5.0 Investigation Results

Arsenic (1.6 mg/kg to 7.8 mg/kg), barium (45 mg/kg to 86 mg/kg), total chromium (2.7 mg/kg to 8.1 mg/kg), and lead (6.3 mg/kg to 52 mg/kg) were detected in all twelve of the surface and near-surface hand auger samples collected from the Building 101-32 catchment pits. Cadmium was detected in four of the samples at concentrations ranging from 0.65 mg/kg to 1.4 mg/kg, and mercury was detected in five samples at concentrations ranging from 0.15 mg/kg to 0.34 mg/kg. Selenium and beryllium were not detected in any of the twelve surface and near-surface samples.

Eight explosives compounds were detected in eleven of the twelve surface and near-surface soil samples from the three Building 101-32 catchment pits. Only the surface sample at location HA03 (B9-HA1-3-000) contained no detections of any of the explosives. RDX and octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) were detected at the highest concentrations and were found in all of the catchment pits. The highest HMX concentration (1,200 mg/kg) was detected in the western catchment pit from sample location HA01 at the surface, and the highest RDX concentration (230 mg/kg) was detected in the southern catchment pit from sample location HA04 at a depth of five feet. In addition, 4-amino-2,6-DNT and 2-amino-4,6-DNT were detected in the surface samples collected from locations HA01 and HA04 at concentrations ranging from 5.4 mg/kg to 57 mg/kg.

Arsenic (2.1 mg/kg to 5.2 mg/kg), barium (50 mg/kg to 320 mg/kg), total chromium (6.6 mg/kg to 9 mg/kg), and lead (2.7 mg/kg to 4.7 mg/kg) were detected in all three of the subsurface samples collected from the two CPT borings drilled near the Building 101-32 catchment pits. Beryllium was detected in only one of the three subsurface samples at a concentration of 0.62 mg/kg.

Explosives were not detected in the two subsurface samples collected from boring CPS01. However, HMX was detected at 1.7 mg/kg and RDX was detected 3.1 mg/kg from the subsurface sample collected from boring CPS02. No other explosives were detected in the subsurface samples collected from these borings.

Based on the analytical results of this remedial investigations at SWMU B09, the surface, near-surface, and subsurface soils at the Building 101-32 catchment pits contain detectable concentrations of arsenic, barium, beryllium, cadmium, total chromium, lead, mercury, and selenium, which do not exceed their respective PCGs. Even though beryllium, lead, and mercury were detected at concentrations exceeding the maximum background concentrations, these metals were still below their respective PCGs. Based on this comparison, these metals do not appear to be at concentrations of environmental concern at this SWMU.

Based on the analytical results of the soil samples, the lateral extent of the soils impacted by explosives at Building 101-32 catchment pits appears to be mostly within the areal extent of the catchment pit. Only two analytes (HMX and RDX) were detected in the three CPT soil samples collected adjacent to the Building 101-32 catchment pit at concentrations below their respective PCGs. The lateral extent appears to be defined within this area at the Building 101-32 catchment Pits to the limits of the PCGs. Building 101-55 had its stained soil samples in January of 1999 by USACE. When the sample showed no contamination above action levels the USACE then took confirmation samples. The sample locations are shown on figure 7 and the analytical results are presented in appendix D. The highest level of explosives at 101-55 was RDX at 0.87 PPM.

6.0 Remediation

The explosives contaminated soil from SWMU B-09 was treated by windrow composting. Composting is a natural process in which microorganisms biologically degrade organic material. For the destruction of the explosives contamination temperatures in the compost must reach between 120° F — 160° F and the system must remain in aerobic conditions. The windrow system of composting was selected as the most efficient and economical to be used at the site. Two hundred and sixteen (216) cubic yards of contaminated soil was removed from B-09 and placed in compost windrows. Confirmation samples, from the excavated area and finished compost, were taken in accordance with the project work plan.

7.0 Remediation Results

Contaminated soil from B-09 was placed into two (2) different windrows at remediation pad 1(windrows 5B and 6B). After the treatment process the windrows were sampled for explosives and the test results are shown in appendix D; along with the windrow temperature graphs. The location of the confirmation samples taken in the B-09 excavation area are shown in figures 4-7 with the analytical results of these tests also shown in appendix D.

8.0 Public Involvement:

It is the U.S. Department of Defense and Army policy to involve the local community throughout the investigation process at an installation. To initiate this involvement, HWAD has established and maintains a repository library at the local public library. This repository includes final copies of all past studies and other documents regarding environmental issues at HWAD. As future environmental documents are made available to HWAD the repository shall be updated.

HWAD has solicited community participation in establishment of a restoration and advisory board (RAB). To date there has been insufficient response and HWAD has not formed a RAB. HWAD has held open houses to inform the public of on going environmental issues. HWAD shall continue to solicit community involvement, and will establish a RAB should sufficient community interest be obtained.

9.0 Conclusions

The contaminated soil has been removed from SWMU B-09 and has been treated in the composting windrows to levels below clean up goals. SWMU B-09 should be closed with the restrictions that no structure be constructed on the SWMU, that the site remain only for industrial use and documented on the depot site master plan.

10.0 REFERENCES

- Ecology and Environment. 1995. RCRA Facility Assessment Report for 24 Solid Waste Management Units, Hawthorne Army Depot, Hawthorne, Nevada. April 1995.
- Jacobs Engineering, 1988. RCRA Facility Assessment, Hawthorne Army Ammunition Plant, TES IV Work Assignment No. 433.
- Millsap, Herman. 1977. Hawthorne Army Depot. Personal communication via telephone with Richard Brunner of Tetra Tech, July 17, 1997.
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- _____. 1997b. Quarterly Ground Water Monitoring Report, Second Quarter 1997, Hawthorne Army Depot, Hawthorne, Nevada. July 1997.
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- USACE. 1995. Risk Assessment Handbook: Volume I Human Health Assessment (EM 200-1-4). USACE. June 1995.
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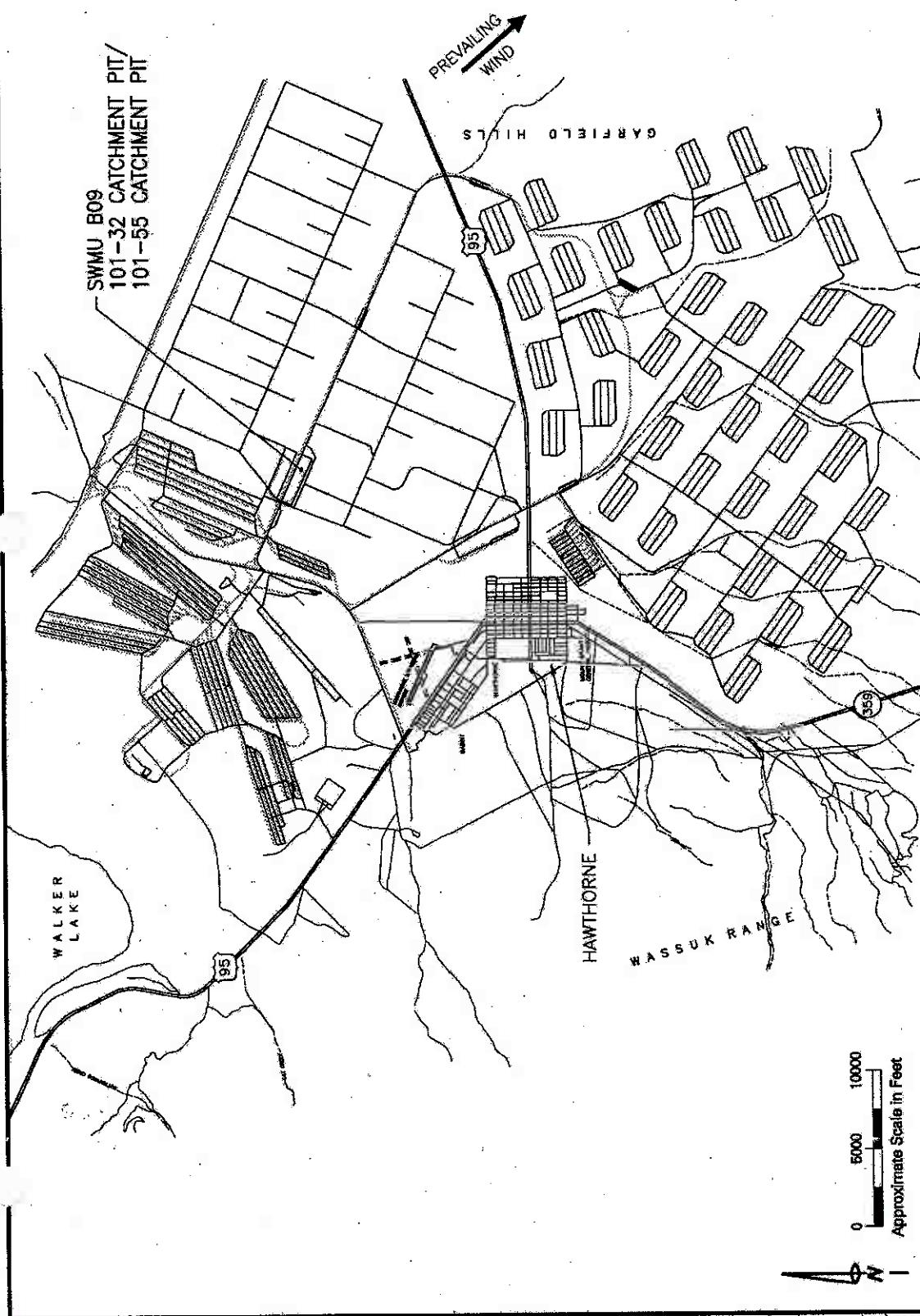
_____. 1996. Region IX Preliminary Remediation Goals. USEPA Region IX. August 1996.

WaterWork. 1990. Hawthorne Army Ammunition Plant, Area 101 Surface Impoundments, Field and Lab Data and Analysis, Attachment 1-8.

Figure 1-1

**Location Map
SWMU B09
101-32/55 Catchment Pit**

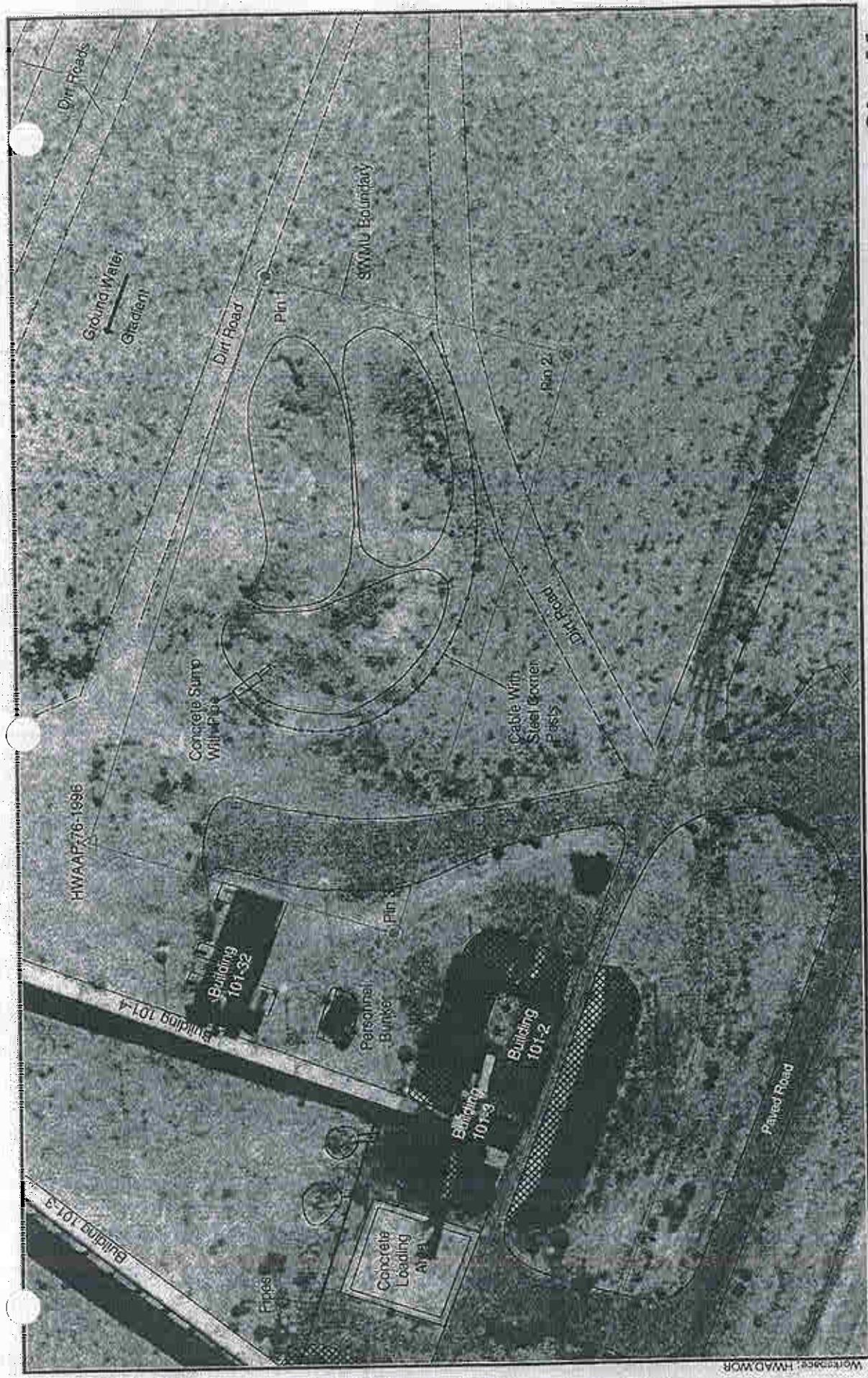
Hawthorne Army Depot
Hawthorne, Nevada



**Site Map
SWMU B09
101-32 Catchment Pit**

Hawthorne Army Depot
Hawthorne, Nevada

Figure 1-2



Legend:

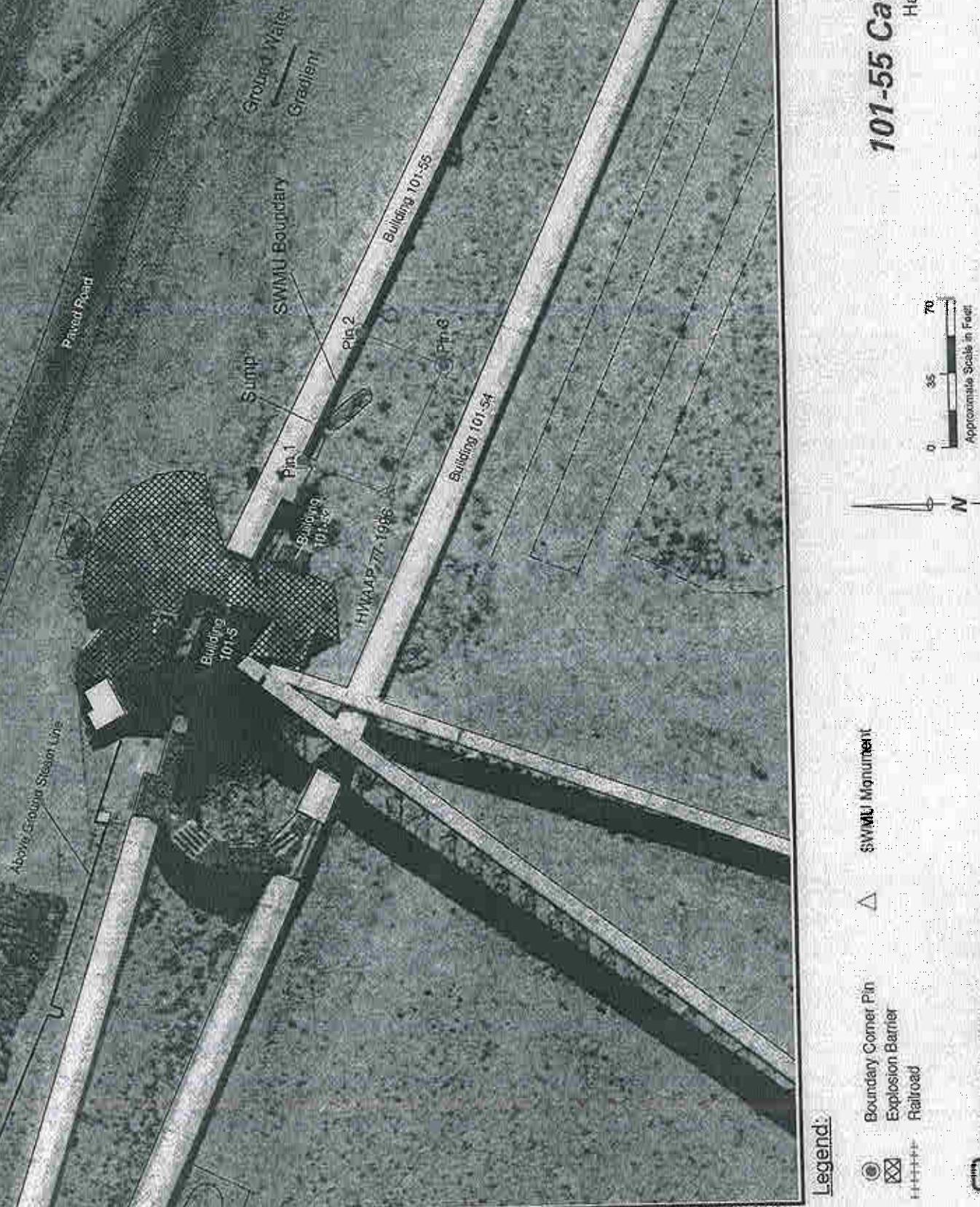
- Boundary Corner Pin
- ✖ Explosion Barrier
- Fence
- △ Railroad
- ▲ SWMU Monument

0 35 70
Approximate Scale in Feet

**Site Map
SWMU B09
101-55 Catchment Pit**

Hawthorne Army Depot
Hawthorne, Nevada

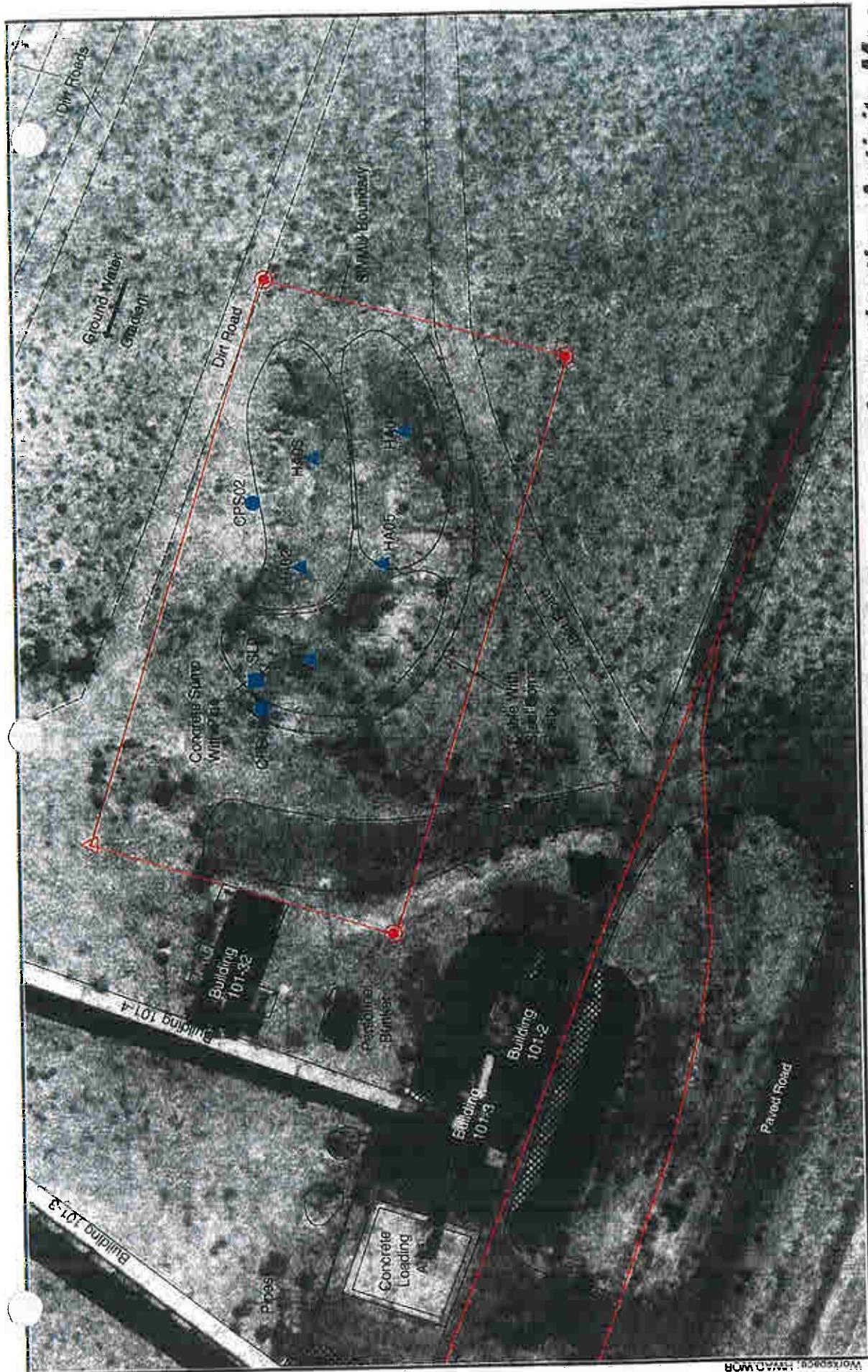
Figure 1-3

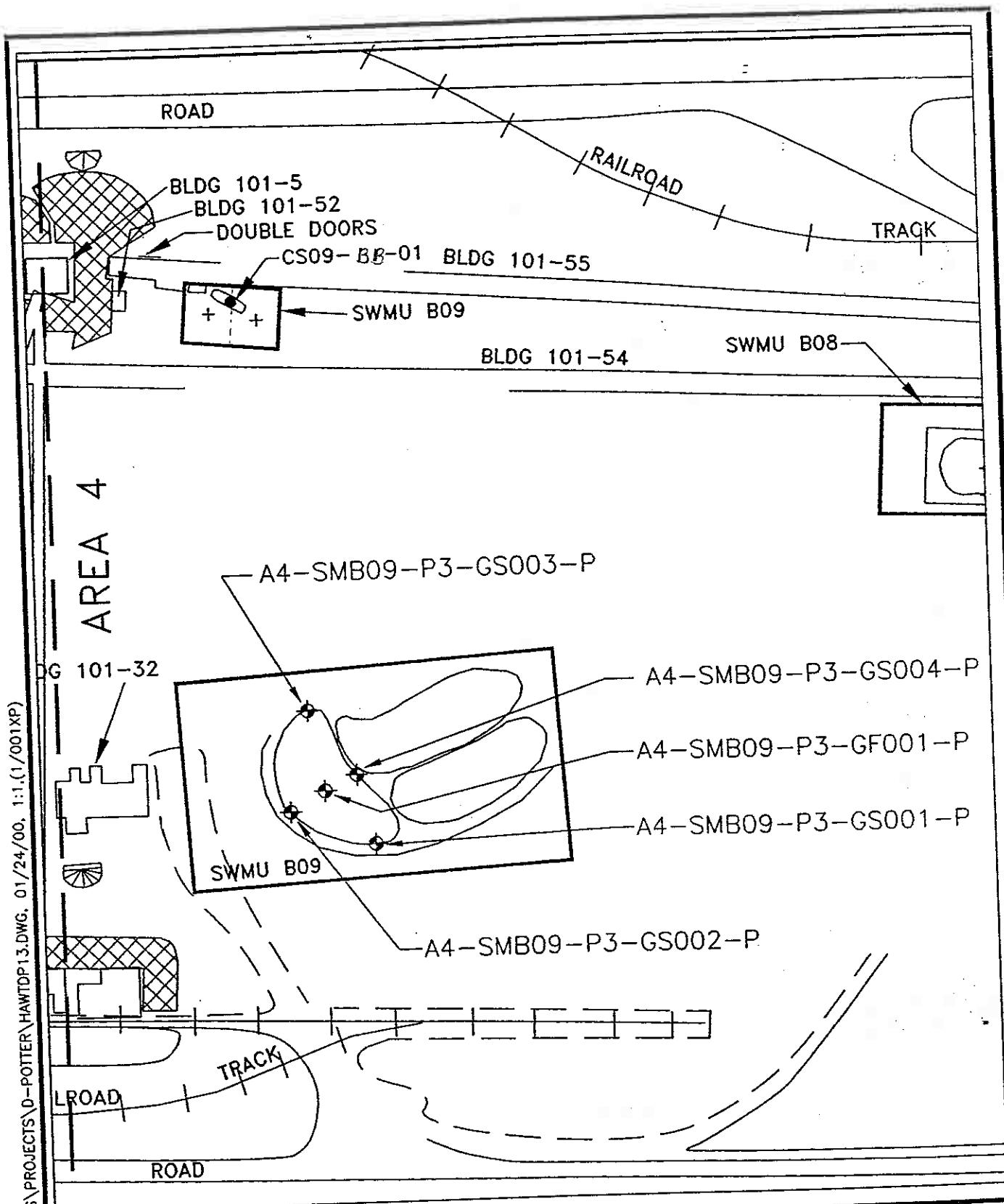


**Investigation Activity Map
SWMU B09
101-32 Catchment Pit**

Hawthorne Army Depot
Hawthorne, Nevada

Figure 3-1



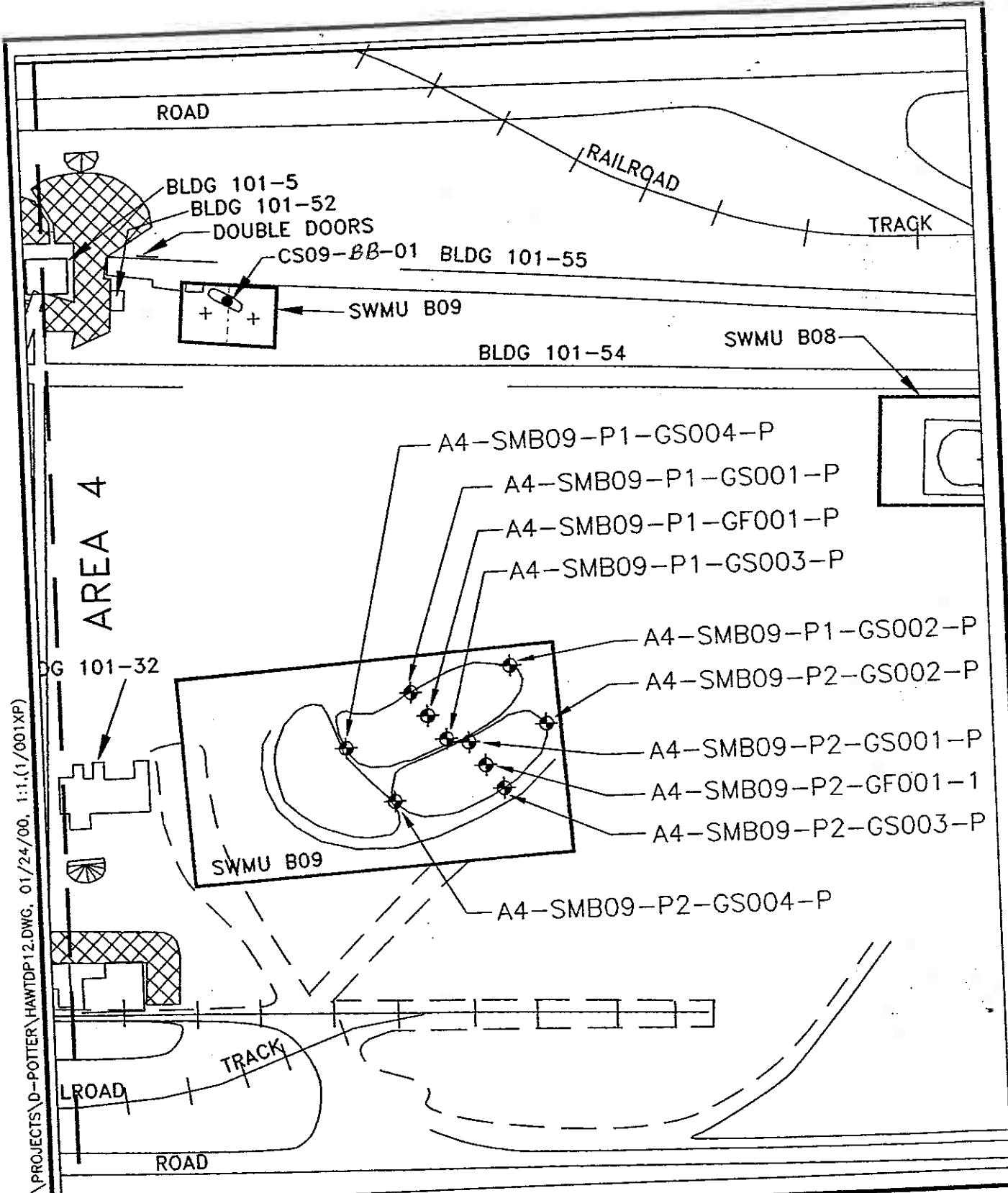


DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT,
CORPS OF ENGINEERS
JANUARY 2000

HAWTHORNE NEVADA
HAWTHORNE ARMY DEPOT
WEST 101 PRODUCTION AREA

SITE MAP (AREA 4)
SOIL SAMPLE LOCATIONS

SCALE: 1" = 100' FIGURE: 4



DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT,
CORPS OF ENGINEERS
JANUARY 2000

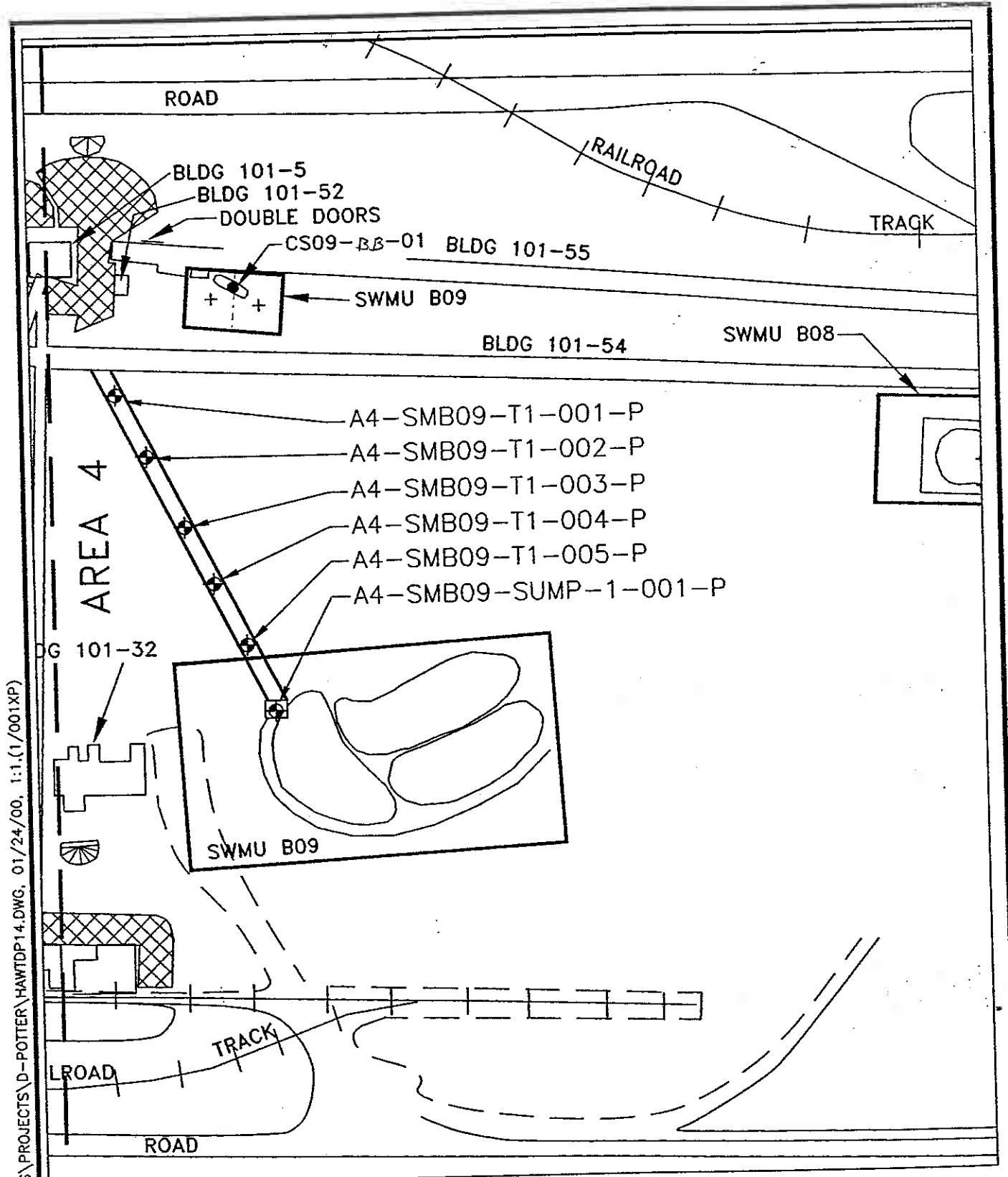
HAWTHORNE NEVADA

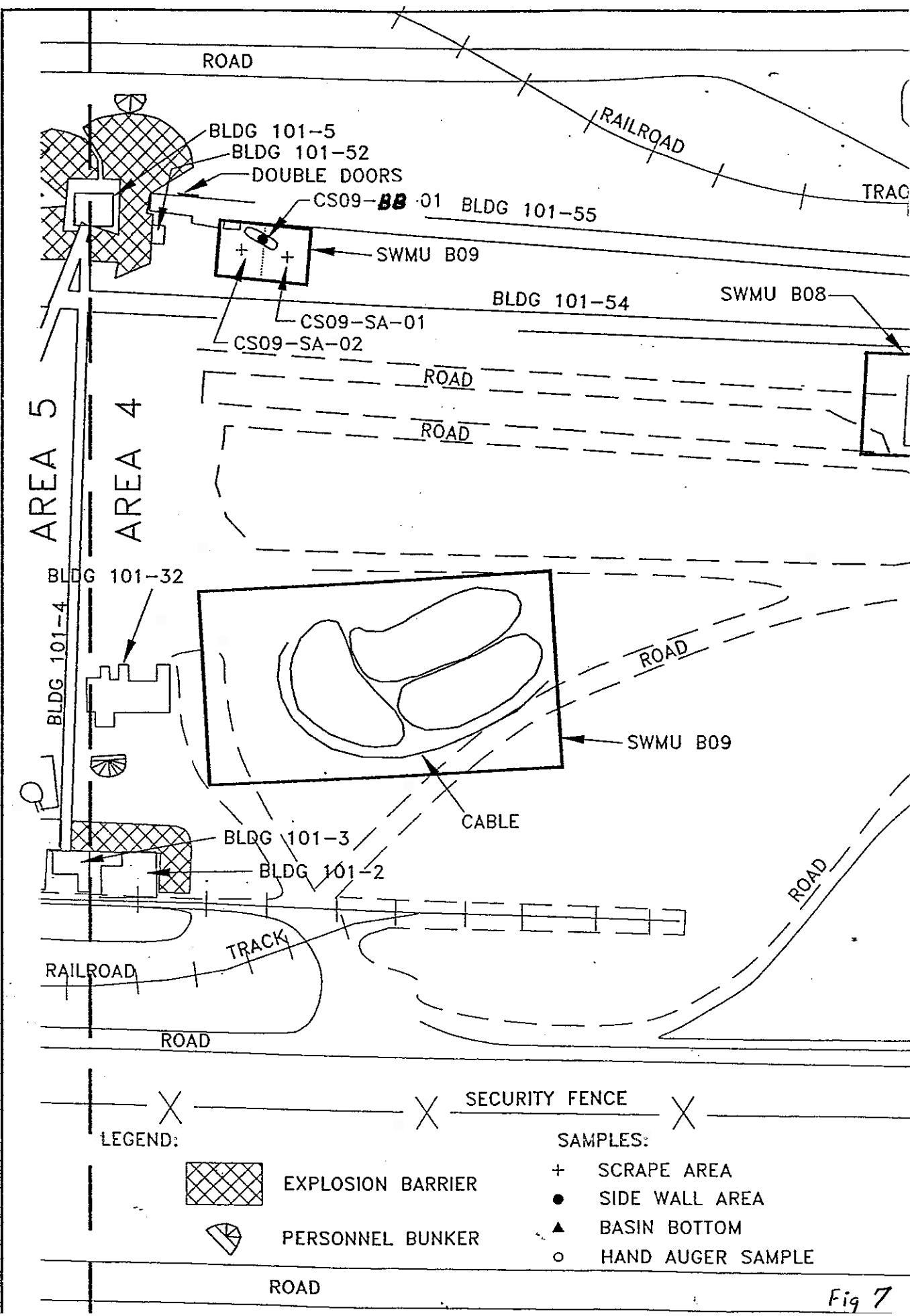
HAWTHORNE ARMY DEPOT
WEST 101 PRODUCTION AREA

SITE MAP (AREA 4)
SOIL SAMPLE LOCATIONS

SCALE: 1" = 100'

FIGURE: 5





Appendix A

Proposed Closure Goals
Hawthorne Army Depot
Hawthorne, Nevada

Constituent of Concern	Chemical Classification	Carcinogenic (G) or Non-carcinogenic (NC)	HWAD Proposed Closure Goals for SoH (mg/Kg)	HWAD Proposed Closure Goal Source
Nitrate	Anion	NC	128,000	Calculated Subpart S ^a
2-Amino-dinitrotoluene	Explosive	NC	-	NA ^b
4-Amino-dinitrotoluene	Explosive	NC	8	NA
1,3-Dinitrobenzene	Explosive	NC	160	Calculated Subpart S
2,4-Dinitrotoluene	Explosive	NC	80	Calculated Subpart S
2,6-Dinitrotoluene	Explosive	NC	4,000	Calculated Subpart S
HMX	Explosive	NC	40	Calculated Subpart S
Nitrobenzene	Explosive	NC	800	Calculated Subpart S
Nitrotoluene (2-, 3-, 4-)	Explosive	NC	64	Calculated Subpart S
RDX	Explosive	NC	800	Calculated Subpart S
Tetryl	Explosive	NC	4	Calculated Subpart S
1,3,5-Trinitrobenzene	Explosive	NC	233	Calculated Subpart S
2,4,6-Trinitrotoluene	Explosive	C	-	Calculated Subpart S
Aluminum	Metal	NC	80,000	Calculated Subpart S
Arsenic (cancer endpoint)	Metal	C & NC	30	Background ^c
Barium and compounds	Metal	NC	5,600	Calculated Subpart S
Beryllium and compounds	Metal	C	1	Background
Cadmium and compounds	Metal	NC	40	Calculated Subpart S
Chromium III and compounds	Metal	NC	80,000	Calculated Subpart S
Lead	Metal	NC	1000	PRG ^d
Mercury and compounds (inorganic)	Metal	NC	24	Calculated Subpart S
Selenium	Metal	NC	400	Calculated Subpart S
Silver and compounds	Metal	NC	400	Calculated Subpart S
Acenaphthene	PAH	NC	4,800	Calculated Subpart S
Benzo[a]anthracene	PAH	C	0.96	Calculated Subpart S
Benzo[a]pyrene	PAH	C	0.10	Detection Limit ^e
Benzo[b]fluoranthene	PAH	C	0.96	Calculated Subpart S
Benzo[k]fluoranthene	PAH	C	10	Calculated Subpart S
Chrysene	PAH	C	96	Calculated Subpart S
Dibenz[ah]anthracene	PAH	C	0.96	Calculated Subpart S
Fluoranthene	PAH	NC	3,200	Calculated Subpart S
Fluorene	PAH	NC	3,200	Calculated Subpart S
Indeno[1,2,3-cd]pyrene	PAH	C	-	NA
Naphthalene	PAH	NC	3,200	Calculated Subpart S
Pyrene	PAH	NC	2,400	Calculated Subpart S
Total Petroleum Hydrocarbons as Diesel (TPH-d)	PAH	C	100	NDEP Level Clean-up ^f
Polychlorinated biphenyls (PCBs)	PCBs	C	25	TSCA ^g
Bis(2-ethylhexyl)phthalate (DEHP)	SVOC	C	1,600	Calculated Subpart S
Bromoform (tribromomethane)	SVOC	C	89	Calculated Subpart S

Proposed Closure Goals
Hawthorne Army Depot
Hawthorne, Nevada

Constituent of Concern	Chemical Classification	Carcinogenic (C) or Non-carcinogenic (NC)	HRAD Proposed Closure Goals for Soil (mg/kg)	HRAD Proposed Closure Goal Source
Butyl benzyl phthalate	SVOC	NC	16,000	Calculated Subpart S
Dibromochloromethane	SVOC	C	83	Calculated Subpart S
Dibutyl-phthalate	SVOC	NC	8,000	Calculated Subpart S
Diethyl phthalate	SVOC	NC	64,000	Calculated Subpart S
Phenanthrene	SVOC	NC	NA	Calculated Subpart S
Phenol	SVOC	NC	48,000	Calculated Subpart S
Acetone	VOC	NC	800	Calculated Subpart S
Anthracene	VOC	NC	24,000	Calculated Subpart S
Benzene	VOC	C	24	Calculated Subpart S
Bis(2-chloroisopropyl)ether	VOC	C	3,200	Calculated Subpart S
Bromomethane	VOC	NC	112	Calculated Subpart S
Carbon tetrachloride	VOC	C	5	Calculated Subpart S
Chlorobenzene	VOC	NC	1,600	Calculated Subpart S
Chloroform	VOC	C	115	Calculated Subpart S
Chloromethane	VOC	C	538	Calculated Subpart S
Dibromomethane	VOC	C	0.008	Calculated Subpart S
1,2-Dichlorobenzene	VOC	NC	7,200	Calculated Subpart S
1,4-Dichlorobenzene	VOC	C	18,300	Calculated Subpart S
Dichlorodifluoromethane	VOC	C	16,000	Calculated Subpart S
Ethylbenzene	VOC	NC	800	Calculated Subpart S
Methylene bromide	VOC	NC	8,000	Calculated Subpart S
Methylene chloride	VOC	C	4,800	Calculated Subpart S
2-Methylnaphthalene	VOC	C	-	NA
1,1,2,2-Tetrachloroethane	VOC	C & NC	35	Calculated Subpart S
Tetrachloroethylene (PCE)	VOC	NC	800	Calculated Subpart S
Toluene	VOC	NC	16,000	Calculated Subpart S
1,1,1-Trichloroethane	VOC	NC	7,200	Calculated Subpart S
Trichloroethylene (TCE)	VOC	C & NC	480	Calculated Subpart S
Trichlorofluoromethane	VOC	NC	24,000	Calculated Subpart S
1,2,3-Trichloropropane	VOC	C	480	Calculated Subpart S
Vinyl chloride	VOC	C	0.37	Calculated Subpart S
Xylene Total (m-, o-, p-)	VOC	NC	160,000	Calculated Subpart S
2,3,7,8-TCDD	Dioxin	C	0.000005	Calculated Subpart S

^a RCRA 55 FR 30870

^b Not available

^c Highest background concentration detected in 50 background soil samples

^d Smucker, Stanford J. USEPA Region IX, Preliminary Remedial Goals, Second Half, Sep. 1995

^e Method detection limit for Volatile Organic Compounds by EPA Method 8260 or

^f Semi-Volatile Organic Compounds analyzed by EPA Method 8270

^g Nevada Division of Environmental Protection

^h Cleanup level for PCB spills in accordance with Toxic Substance and Control Act Spill Policy Guidelines 40 CFR 761

ⁱ Cleanup level for PCB spills in accordance with Toxic Substance and Control Act Spill Policy Guidelines 40 CFR 761

SAP (9/98, Final) - West 101 Production Area (HWAD)

Proposed Excavation Goal (PEG's) by Definitive and Screening * Analysis
Maximum Concentration of Contaminants
In Soil to Be Left in Place at Depth Below the Surface

Contaminant	Concentration (mg/kg)
2,4,6,-trinitrotoluene (TNT)	800*
2,4-dinitrotoluene (2,4-DNT)	80
2,6-dinitrotoluene (2,6-DNT)	80
1,3,5-trinitrobenzene (1,3,5-TNB)	150
1,3,-dinitrobenzne (1,3-DNB)	NE
2-amino-4,6dinitrotoluene (2-Am-DNT)	NE
4-amino-2,6-dinitrotoluene (4-Am-DNT)	NE
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocene (HMX)	4000
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	300
Picric acid	7.0
Pentachlorophenol	NE
Nitroaromatics/Nitroamines	<30

SAP (9/98, Final) - West 101 Production Area (HWAD)

Clean-up Goals by Screening* and Definitive Analysis

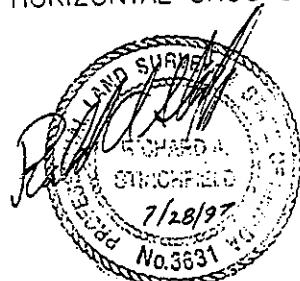
Contaminant	Concentration (mg/kg)
2,4,6-trinitrotoluene (TNT)	40*
2,4-dinitrotoluene (2,4-DNT)	2.6
2,6-dinitrotoluene (2,6-DNT)	2.6
1,3,5-trinitrobenzene (1,3,5-TNB)	4
1,3-dinitrobenzene (1,3-DNB)	8
2-amino-4,6-dinitrotoluene (2-Am-DNT)	NE
4-amino-2,6-dinitrotoluene (4-Am-DNT)	NE
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	100
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	64
Picric acid	7
Pentachlorophenol	None

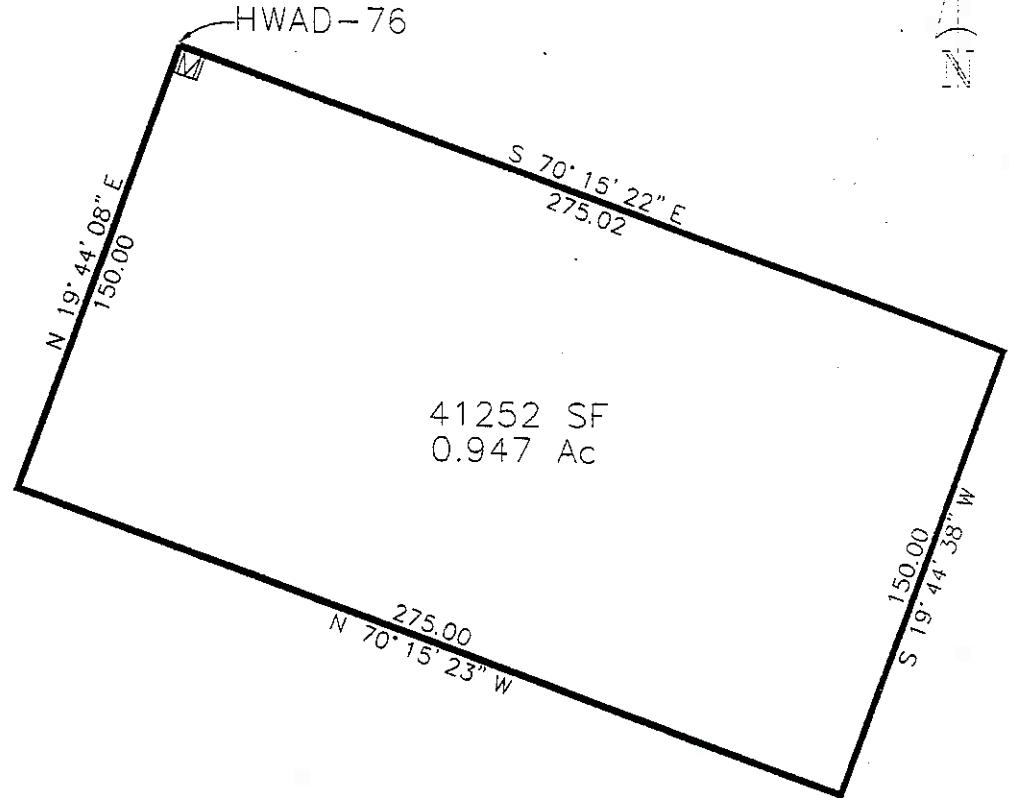
NE - not established

Appendix B

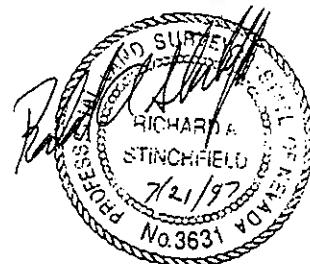
NOTES

1. FOR THE LOCATION OF THE FOLLOWING SWMU'S, REFER TO FIGURE 3-6 OF THE "FINAL R.C.R.A. FACILITY INVESTIGATION REPORT OF GROUP "A" SOLID WASTE MANAGEMENT UNITS A-04, B-16, B-21, B-24, B-26, AND H-01".
2. THE "HWAD" MONUMENTS AS SHOWN HEREIN AS "M", ARE A 1' X 1' X 2' CONCRETE MONUMENT WITH A BRASS CAP STAMPED AS PER SPECIFICATIONS. ALL OF THE OTHER CORNERS ARE MARKED BY A 5/8" RE-BAR WITH A PLASTIC CAP STAMPED "STINCHFIELD PLS 3631" UNLESS NOTED OTHERWISE ON THE MAPS.
3. HORIZONTAL DATUM IS BASED ON NAD 83(1994) AND MORE SPECIFICALLY, NGS STATION "W 2". "W 2" IS A FEDERAL BASE NETWORK CONTROL STATION AND IS LOCATED IN THE APPROXIMATE CENTER OF THIS PROJECT.
4. VERTICAL DATUM IS BASED ON NAVD 29. NAVD 88 ELEVATIONS HAVE BEEN SCALED AND THEREFORE ARE NOT ACCURATE. VERTICAL CONTROL USING GPS WAS USED TO ESTABLISH THE ELEVATIONS OF THE EXISTING CONTROL POINTS AND THE "HWAD" MONUMENTS. THE VALUE OF NGS STATION "W 2" WAS USED AS A BASIS FOR THE VERTICAL CONTROL.
5. COORDINATE VALUES OF EXISTING NGS CONTROL, TRAVERSE POINTS, AND HWAD MONUMENTS ARE STATE PLANE COORDINATES, WEST ZONE.
6. THE COMBINED FACTOR WAS CALCULATED USING THE FOLLOWING FIGURES. THE "MAP SCALE" AT POINT "W 2" IS 0.99990022, THE MEAN ELEVATION OF THE TOTAL PROJECT WAS TAKEN AS 4150.00 FEET ABOVE SEA LEVEL AND THE MEAN RADIUS OF THE EARTH WAS TAKEN AS 20,906,000 FEET. THE SEA LEVEL FACTOR WAS CALCULATED AS FOLLOWS: $20,906,000 / 20,906,000 + 4150.00 = 0.999801532$. THE COMBINED FACTOR (CF) WAS CALCULATED AS FOLLOWS: $0.99990022 \times 0.999801532 = 0.999701772$.
7. GROUND DISTANCE X CF (0.999801532) = GRID DISTANCE.
8. GRID DISTANCE X INVERSE CF (1.00298317) = GROUND DISTANCE.
9. COORDINATE VALUES OF ALL OTHER POINTS INCLUDING SWMU CORNERS OTHER THAN "HWAD" MONUMENTS, REFERENCE POINTS, TEST PIT OR HOLE LOCATIONS ETC., WERE CALCULATED USING GROUND DISTANCES AND ARE THEREFORE NOT TRUE STATE PLANE COORDINATES.
10. DISTANCES AS SHOWN ON THESE SWMU'S ARE HORIZONTAL GROUND DISTANCES.





NW	COR	N	14512254.422	E	2622776.303	ELEV	4200.752
NE	COR	N	14512161.515	E	2623035.157	ELEV	4202.401
SE	COR	N	14512020.334	E	2622984.485	ELEV	4204.072
SW	COR	N	14512113.233	E	2622725.651	ELEV	4199.854



50 25 0 50 100 150

SCALE IN FEET



ecology and environment, inc.

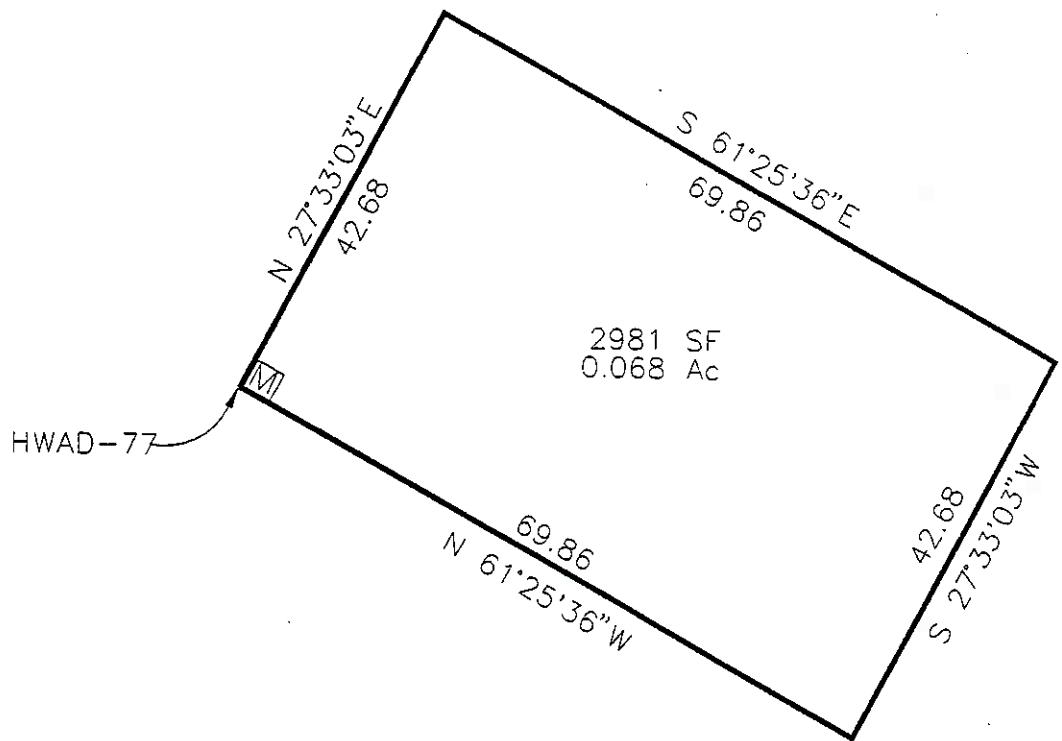
International Specialists in the Environment

SWMU B-09

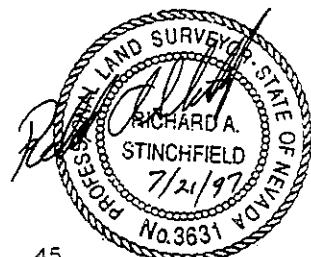


COMSTOCK
LAND SURVEYING

777 LA RUE AVENUE, SUITE A



WEST COR	N 14512480.494	E 2622897.325	ELEV 4201.307
NORTH COR	N 14512518.334	E 2622917.066	ELEV 4200.041
EAST COR	N 14512484.922	E 2622978.416	ELEV 4199.798
SOUTH COR	N 14512447.082	E 2622958.675	ELEV 4200.844



15 7 0 15 30 45

SCALE IN FEET

SWMU B09 Survey Data
Hawthorne Army Depot
Hawthorne, Nevada

SWMU	Point ID	Northing (feet)	Easting (feet)	Elevation
B09	HA05	1388779	498495.9	NE
B09	HA04	1388763	498562.3	NE
B09	HA03	1388808	498552.2	NE
B09	HA02	1388819	498497.6	NE
B09	HA01	1388818	498450.2	NE
B09	SL01	1388844.44	498441.8	NE
B09	CPS02	1388838.42	498532.08	NE
B09	CPS01	1388842.55	498427.46	NE
B09	Pin 3	1388788.82	498307.44	4199.854
B09	Pin 2	1388681.31	498593.8	4204.072
B09	Pin 1	1388822.49	498644.48	4202.401
B09	HWAAP-76-1996	1388931.18	498364.79	4200.752
B09	Pin 3	14512447.08	2622958.68	4200.844
B09	Pin 2	14512484.92	2622978.42	4199.798
B09	Pin 1	14512518.33	2622917.07	4200.041
B09	HWAAP-77-1996	14512480.49	2622897.33	4201.307

Notes:

NE = Not established

Coordinate data at HWAAP-76-1996 based on electronic map file using the NAD 1927 datum.

Coordinate data at HWAAP-77-1996 based on survey data using the NAD 1983 datum.

Elevation data based on surveyors map using NGVD 1929 datum.

Appendix C

Nitrogen
Method 353.2 (ASC)

Sample ID	Location ID	Sample Date	Depth	Lab	Nitrogen Nitrate mg/kg	Ammonia as Nitrogen mg/kg
B9-HA1-1-000	HA01	5/3/94	0.5	ASC	8.2	NA
B9-HA1-1-005	HA01	5/3/94	5	ASC	2.2	NA
B9-HA2-1-000	HA01	5/3/94	0.5	ASC	8.9	NA
B9-HA1-2-000	HA02	5/3/94	0.5	ASC	7.1	NA
B9-HA1-2-005	HA02	5/3/94	5	ASC	1.7	NA
B9-HA1-3-000	HA03	5/3/94	0.5	ASC	2.5	NA
B9-HA1-3-005	HA03	5/3/94	5	ASC	<1	NA
B9-HA1-4-000	HA04	5/3/94	0.5	ASC	11	NA
B9-HA1-4-005	HA04	5/3/94	5	ASC	10	NA
B9-HA1-5-000	HA05	5/3/94	0.5	ASC	14	NA
B9-HA1-5-005	HA05	5/3/94	5	ASC	2.2	NA
B9-HA2-5-000	HA05	5/3/94	0.5	ASC	12	NA
B9-CPS1-1-025	CPS01	5/22/94	25	ASC	<1.1	NA
B9-CPS1-2-021	CPS02	5/22/94	21	ASC	1.5	NA
<hr/>						
Analyses					14	0
Detections					12	0
Minimum Concentration					1.5	0
Maximum Concentration					14	0
<hr/>						
HWAD - PCG					128000	NE
HWAD - PCG Hits					0	NE
<hr/>						

Notes:

NA = Not analyzed

NE = Not established

Zero values listed for maximum and minimum concentrations indicate a nondetect value for that analyte.

Metals
Method 6010A (ASC)

Sample ID	Location ID	Sample Date	Lead	Boron	Barium	Beryllium	Cadmium	Chromium Total	Silver	Arsenic	Lead	Selenium
B9-HA1-1-000	HA01	5/3/94	0.5	ASC	70	<0.51	1	7.6	<1	NA	45	NA
B9-HA1-1-005	HA01	5/3/94	5	ASC	73	<0.52	<0.52	3.3	<1	1.6	10	<0.52
B9-HA2-1-000	HA01	5/3/94	0.5	ASC	74	<0.52	1.4	8.1	<1	5.2	52	<0.52
B9-HA1-2-000	HA02	5/3/94	0.5	ASC	56	<0.5	<0.5	4	<1	5	21	<0.5
B9-HA1-2-005	HA02	5/3/94	5	ASC	62	<0.58	<0.58	2.8	<1.2	1.8	8.4	<0.58
B9-HA1-3-000	HA03	5/3/94	0.5	ASC	86	<0.5	<0.5	4.8	<1	7.8	16	<0.5
B9-HA1-3-005	HA03	5/3/94	5	ASC	65	<0.51	<0.51	3.4	<1	3	6.3	<0.51
B9-HA1-4-000	HA04	5/3/94	0.5	ASC	68	<0.5	<0.5	3.8	<1	6.8	17	<0.5
B9-HA1-4-005	HA04	5/3/94	5	ASC	64	<0.52	<0.52	2.7	<1	2.4	7.9	<0.52
B9-HA1-5-000	HA05	5/3/94	0.5	ASC	69	<0.52	0.94	3.8	<1	5.1	21	<0.52
B9-HA1-5-005	HA05	5/3/94	5	ASC	47	<0.53	<0.53	4	<1	1.7	10	<0.53
B9-HA2-5-000	HA05	5/3/94	0.5	ASC	45	<0.51	0.65	4.3	<1	4.6	18	<0.51
B9-CPS1-1-019	CPS01	5/22/94	19	ASC	320	0.62	<0.54	9	<1.1	5.2	4.7	<0.54
B9-CPS1-1-025	CPS01	5/22/94	25	ASC	180	<0.53	<0.53	7.2	<1.1	2.1	3.6	<0.53
B9-CPS1-2-021	CPS02	5/22/94	21	ASC	50	<0.52	<0.52	6.6	<1	4.2	2.7	<0.52
Analyses					15	15	15	15	15	14	15	14
Detections					15	1	4	15	0	14	15	0
Minimum Concentration					45	0.62	0.65	2.7	0	1.6	2.7	0
Maximum Concentration					320	0.62	1.4	9	0	7.8	52	0
HWAD - PCG					2000	1	20	20	100	100	100	20
HWAD - PCG Hits					0	0	0	0	0	0	0	0

Notes:

NA = Not analyzed

NE = Not established

Zero values listed for maximum and minimum concentrations indicate a nondetect value for that analyte.

Metals
Method 7060 (ASC)

Sample ID	Location ID	Sample Date	Depth	Lab	Arsenic
					mg/kg
B9-HA1-1-000	HA01	5/3/94	0.5	ASC	5.4
B9-HA1-1-005	HA01	5/3/94	5	ASC	1.6
B9-HA2-1-000	HA01	5/3/94	0.5	ASC	5.2
B9-HA1-2-000	HA02	5/3/94	0.5	ASC	5
B9-HA1-2-005	HA02	5/3/94	5	ASC	1.8
B9-HA1-3-000	HA03	5/3/94	0.5	ASC	7.8
B9-HA1-3-005	HA03	5/3/94	5	ASC	3
B9-HA1-4-000	HA04	5/3/94	0.5	ASC	6.8
B9-HA1-4-005	HA04	5/3/94	5	ASC	2.4
B9-HA1-5-000	HA05	5/3/94	0.5	ASC	5.1
B9-HA1-5-005	HA05	5/3/94	5	ASC	1.7
B9-HA2-5-000	HA05	5/3/94	0.5	ASC	4.6
B9-CPS1-1-019	CPS01	5/22/94	19	ASC	5.2
B9-CPS1-1-025	CPS01	5/22/94	25	ASC	2.1
B9-CPS1-2-021	CPS02	5/22/94	21	ASC	4.2

Analyses	15
Detections	15
Minimum Concentration	1.6
Maximum Concentration	7.8
HWAD - PCG	100
HWAD - PCG Hits	0

Notes:

NA = Not analyzed

NE = Not established

Zero values listed for maximum and minimum concentrations indicate a nondetect value for that analyte.

Metals
Method 7421 (ASC)

Sample ID	Location ID	Sample Date	Depth	Lab	Lead
mg/kg					
B9-CPS1-1-019	CPS01	5/22/94	19	ASC	4.7
B9-CPS1-1-025	CPS01	5/22/94	25	ASC	3.6
B9-CPS1-2-021	CPS02	5/22/94	21	ASC	2.7
<hr/>					
Analyses					3
Detections					3
Minimum Concentration					2.7
Maximum Concentration					4.7
<hr/>					
HWAD - PCG					100
HWAD - PCG Hits					0

Notes:

NA = Not analyzed

NE = Not established

Zero values listed for maximum and minimum concentrations indicate a nondetect value for that analyte.

Mercury
Method 7471 (ASC)

Sample ID	Location ID	Sample Date	Depth	Lab	Mercury
					mg/kg
B9-HA1-1-000	HA01	5/3/94	0.5	ASC	0.23
B9-HA1-1-005	HA01	5/3/94	5	ASC	<0.1
B9-HA2-1-000	HA01	5/3/94	0.5	ASC	0.3
B9-HA1-2-000	HA02	5/3/94	0.5	ASC	<0.1
B9-HA1-2-005	HA02	5/3/94	5	ASC	<0.12
B9-HA1-3-000	HA03	5/3/94	0.5	ASC	<0.1
B9-HA1-3-005	HA03	5/3/94	5	ASC	<0.1
B9-HA1-4-000	HA04	5/3/94	0.5	ASC	0.15
B9-HA1-4-005	HA04	5/3/94	5	ASC	<0.1
B9-HA1-5-000	HA05	5/3/94	0.5	ASC	0.34
B9-HA1-5-005	HA05	5/3/94	5	ASC	<0.1
B9-HA2-5-000	HA05	5/3/94	0.5	ASC	0.32
B9-CPS1-1-019	CPS01	5/22/94	19	ASC	<0.11
B9-CPS1-1-025	CPS01	5/22/94	25	ASC	<0.11
B9-CPS1-2-021	CPS02	5/22/94	21	ASC	<0.1

Analyses	15
Detections	5
Minimum Concentration	0.15
Maximum Concentration	0.34
HWAD - PCG	24
HWAD - PCG Hits	0

Notes:

NA = Not analyzed

NE = Not established

Zero values listed for maximum and minimum concentrations indicate a nondetect value for that analyte.

Metals
Method 7740 (ASC)

Sample ID	Location ID	Sample Date	Depth	Lab	Selenium
					mg/kg
B9-HA1-1-000	HA01	5/3/94	0.5	ASC	<0.51
B9-HA1-1-005	HA01	5/3/94	5	ASC	<0.52
B9-HA2-1-000	HA01	5/3/94	0.5	ASC	<0.52
B9-HA1-2-000	HA02	5/3/94	0.5	ASC	<0.5
B9-HA1-2-005	HA02	5/3/94	5	ASC	<0.58
B9-HA1-3-000	HA03	5/3/94	0.5	ASC	<0.5
B9-HA1-3-005	HA03	5/3/94	5	ASC	<0.51
B9-HA1-4-000	HA04	5/3/94	0.5	ASC	<0.5
B9-HA1-4-005	HA04	5/3/94	5	ASC	<0.52
B9-HA1-5-000	HA05	5/3/94	0.5	ASC	<0.52
B9-HA1-5-005	HA05	5/3/94	5	ASC	<0.53
B9-HA2-5-000	HA05	5/3/94	0.5	ASC	<0.51
B9-CPS1-1-019	CPS01	5/22/94	19	ASC	<0.54
B9-CPS1-1-025	CPS01	5/22/94	25	ASC	<0.53
B9-CPS1-2-021	CPS02	5/22/94	21	ASC	<0.52

Analyses	15
Detections	0
Minimum Concentration	0
Maximum Concentration	0
HWAD - PCG	20
HWAD - PCG Hits	0

Notes:

NA = Not analyzed

NE = Not established

Zero values listed for maximum and minimum concentrations indicate a nondetect value for that analyte.

Picric Acid
Method 8330M (ASC)

Sample ID	Location ID	Sample Date	Depth	Lab	Picric Acid mg/kg
B9-HA1-1-000	HA01	5/3/94	0.5	ASC	<0.25
B9-HA1-1-005	HA01	5/3/94	5	ASC	<0.25
B9-HA2-1-000	HA01	5/3/94	0.5	ASC	<0.25
B9-HA1-2-000	HA02	5/3/94	0.5	ASC	<0.25
B9-HA1-2-005	HA02	5/3/94	5	ASC	<0.25
B9-HA1-3-000	HA03	5/3/94	0.5	ASC	<0.25
B9-HA1-3-005	HA03	5/3/94	5	ASC	<0.25
B9-HA1-4-000	HA04	5/3/94	0.5	ASC	<0.25
B9-HA1-4-005	HA04	5/3/94	5	ASC	<0.25
B9-HA1-5-000	HA05	5/3/94	0.5	ASC	<0.25
B9-HA1-5-005	HA05	5/3/94	5	ASC	<0.25
B9-HA2-5-000	HA05	5/3/94	0.5	ASC	<0.25
B9-CPS1-1-019	CPS01	5/22/94	19	ASC	<0.25
B9-CPS1-1-025	CPS01	5/22/94	25	ASC	<0.25
B9-CPS1-2-021	CPS02	5/22/94	21	ASC	<0.25

Analyses	15
Detections	0
Minimum Concentration	0
Maximum Concentration	0
HWAD - PCG	7
HWAD - PCG Hits	0

Notes:

NA = Not analyzed

NE = Not established

Zero values listed for maximum and minimum concentrations indicate a nondetect value for that analyte.

Explosives
Method 8330 (CCAS)

Sample ID	Location ID	Sample Date	Depth	Aquifer	2,4,6-Tinitrotoluene	2,4-Dinitrotoluene	3,4- and 2,6-Dinitrotoluene	Picric Acid	RDX
DZB-101-13-MW4	DZB101-13MW04	5/23/89	0	<1	<0.2	<0.5	<0.5	<0.2	<1
DZB-101-13-MW4D	DZB101-13MW04	5/23/89	0	<1	<0.2	<0.5	<0.5	<0.2	<1
DZB-101-13-MW5	DZB101-13MW05	5/23/89	0	<1	<0.2	<0.5	<0.5	3.6	<1
DZB-101-13-MW5D	DZB101-13MW05	5/23/89	0	<1	<0.2	<0.5	<0.5	<0.2	<1
DZB-101-13-MW8	DZB101-13MW08	5/23/89	0	<1	<0.2	<0.5	<0.5	1.2	<1
DZB-101-13-MW8D	DZB101-13MW08	5/23/89	0	<1	<0.2	<0.5	<0.5	<0.2	<1
DZB-101-15-MW6	DZB101-15MW06	5/23/89	0	<1	<0.2	<0.5	<0.5	<0.2	<1
DZB-101-15-MW6D	DZB101-15MW06	5/23/89	0	<1	<0.2	<0.5	<0.5	<0.2	<1
DZB-101-15-MW7	DZB101-15MW07	5/23/89	0	<1	<0.2	<0.5	<0.5	<0.2	<1
DZB-101-15-MW7D	DZB101-15MW07	5/23/89	0	<1	<0.2	2	<0.5	<0.2	<1

Analyses
Detections
Minimum Concentration
Maximum Concentration

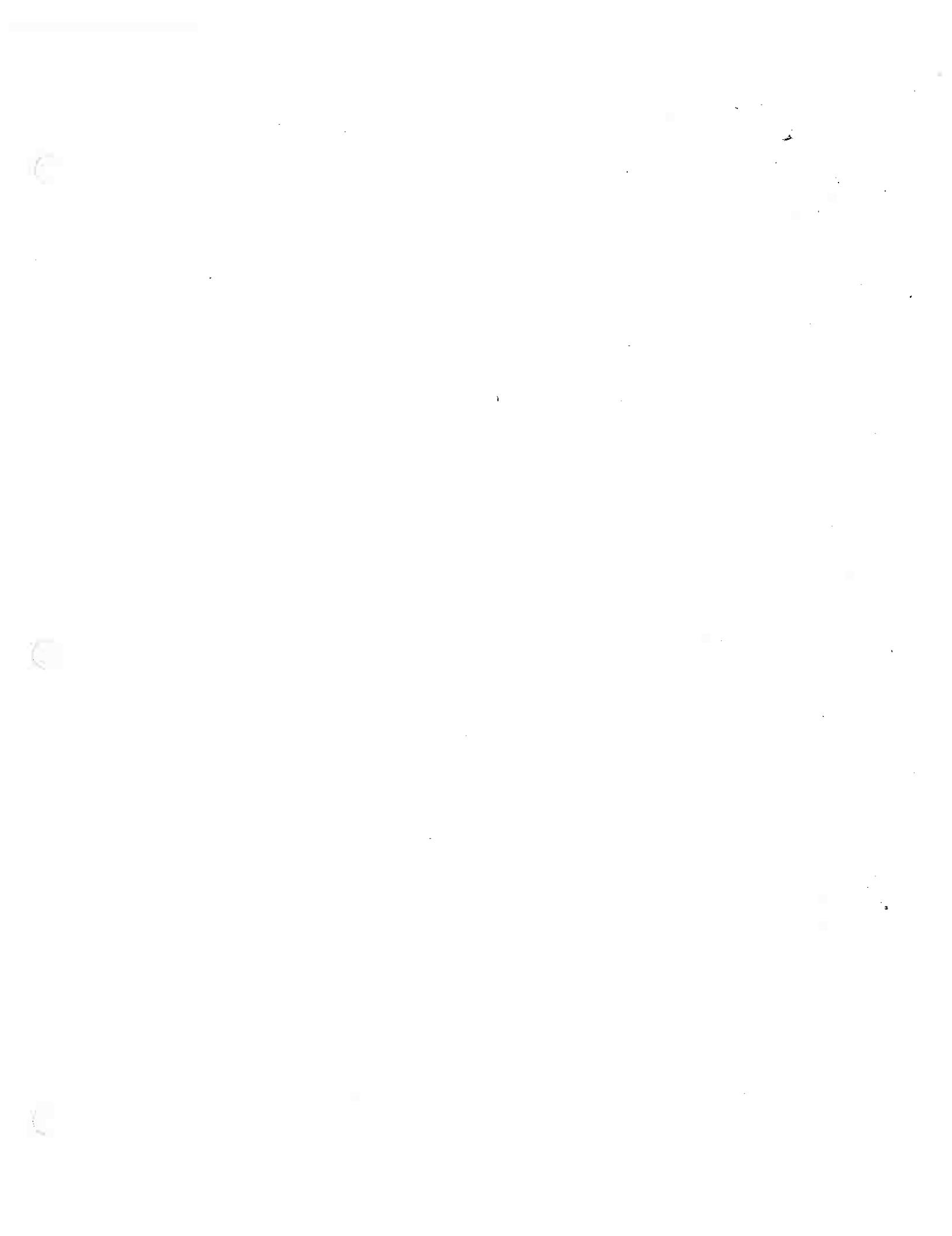
MCL	NE	NE	NE	NE	NE	NE	1	NE
MCL Hits	NE	NE	NE	NE	NE	NE	2	NE
PRG	NE	0.0022	0.073	NE	NE	NE	0.00061	
PRG Hits	NE	0	1	NE	NE	NE	0	

Notes:

NA = Not analyzed

NE = Not established

Zero values listed for maximum and minimum concentrations indicate a nondetect value for that analyte.
HWAD Action Level based on guidance from ASTDR and NDEP approval.



Explosives
Method 8330 (ASC)

Sample ID	Location ID	Sample Date	Depth	Lab	2,4,6-TNT	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Amino-4,6-DNT	2-Nitrotoluene	3-Nitrotoluene	4-Amino-2,6-DNT
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
B9-HA1-1-000	HA01	5/3/94	0.5	ASC	32	2	2.1	38	<1	<1	57
B9-HA1-1-005	HA01	5/3/94	5	ASC	2.7	<1	<1	<1	<1	<1	<1
B9-HA2-1-000	HA01	5/3/94	0.5	ASC	22 ^x	2	<1	30 ^x	<1	<1	47 ^x
B9-HA1-2-000	HA02	5/3/94	0.5	ASC	<1	<1	<1	<1	<1	<1	<1
B9-HA1-2-005	HA02	5/3/94	5	ASC	<1	<1	<1	<1	<1	<1	<1
B9-HA1-3-000	HA03	5/3/94	0.5	ASC	<1	<1	<1	<1	<1	<1	<1
B9-HA1-3-005	HA03	5/3/94	5	ASC	<1	<1	<1	<1	<1	<1	<1
B9-HA1-4-000	HA04	5/3/94	0.5	ASC	5.2	<1	<1	5.4	<1	<1	5.9
B9-HA1-4-005	HA04	5/3/94	5	ASC	24	<1	<1	<1	<1	<1	<1
B9-HA1-5-000	HA05	5/3/94	0.5	ASC	34	<1	<1	7.7	<1	<1	<1
B9-HA1-5-005	HA05	5/3/94	5	ASC	<1	<1	<1	<1	<1	<1	<1
B9-HA2-5-000	HA05	5/3/94	0.5	ASC	15 ^x	<1	<1	7.7	<1	<1	12 ^x
B9-CPS1-1-019	CPS01	5/22/94	19	ASC	<1	<1	<1	<1	<1	<1	<1
B9-CPS1-1-025	CPS01	5/22/94	25	ASC	<1	<1	<1	<1	<1	<1	<1
-CPS1-2-021	CPS02	5/22/94	21	ASC	<1	<1	<1	<1	<1	<1	<1
<hr/>					15	15	15	15	15	15	15
Analyses					7	2	1	5	0	0	4
Detections					2.7	2	2.1	5.4	0	0	5.9
Minimum Concentration					34	2	2.1	38	0	0	57
Maximum Concentration					233	2.6	80	800	800	800	
HWAD - PCG					0	0	0	0	0	0	
HWAD - PCG Hits											

Notes:

NA = Not analyzed

NE = Not established

Zero values listed for maximum and minimum concentrations indicate a nondetect value for that analyte.

Explosives
Method 8330 (ASC)

Sample ID	Location ID	Sample Date	Depth	Lab	4-Nitrotoluene		m-Dinitrobenzene		Nitrobenzene		RDX		sym-Trinitrobenzene		Tetryl	
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
B9-HA1-1-000	HA01	5/3/94	0.5	ASC	<1	1200	<1	<1	36	1.9	<1					
B9-HA1-1-005	HA01	5/3/94	5	ASC	<1	13	<1	<1	21	<1	<1					
B9-HA2-1-000	HA01	5/3/94	0.5	ASC	<1	1100	<1	<1	31 ^x	2.2	<1					
B9-HA1-2-000	HA02	5/3/94	0.5	ASC	<1	28	<1	<1	4.8	<1	<1					
B9-HA1-2-005	HA02	5/3/94	5	ASC	<1	<1	<1	<1	0.6 ^j	<1	<1					
B9-HA1-3-000	HA03	5/3/94	0.5	ASC	<1	<1	<1	<1	<1	<1	<1					
B9-HA1-3-005	HA03	5/3/94	5	ASC	<1	<1	<1	<1	0.51 ^j	<1	<1					
B9-HA1-4-000	HA04	5/3/94	0.5	ASC	<1	60 ^x	<1	<1	220	0.49 ^j	<1					
B9-HA1-4-005	HA04	5/3/94	5	ASC	<1	5.9	<1	<1	230	3.8	<1					
B9-HA1-5-000	HA05	5/3/94	0.5	ASC	<1	180	<1	<1	120	0.94 ^j	<1					
B9-HA1-5-005	HA05	5/3/94	5	ASC	<1	<1	<1	<1	1.1	<1	<1					
B9-HA2-5-000	HA05	5/3/94	0.5	ASC	<1	170	<1	<1	47	1.4	<1					
B9-CPS1-1-019	CPS01	5/22/94	19	ASC	<1	<1	<1	<1	<1	<1	<1					
B9-CPS1-1-025	CPS01	5/22/94	25	ASC	<1	<1	<1	<1	<1	<1	<1					
B9-CPS1-2-021	CPS02	5/22/94	21	ASC	<1	1.7	<1	<1	3.1	<1	<1					
Analyses					15	15	15	15	15	15	15	15	15	15	15	15
Detections					0	9	0	0	12	6	0					
Minimum Concentration					0	1.7	0	0	0.51	0.49	0					
Maximum Concentration					0	1200	0	0	230	3.8	0					
HWAD - PCG					800	4000	8	40	64	4	800					
HWAD - PCG Hits					0	0	0	0	3	0	0					

Notes:

NA = Not analyzed

NE = Not established

Zero values listed for maximum and minimum concentrations indicate a n value for that analyte.

Picric Acid
Method 8330M (ASC)

Sample ID	Location ID	Sample Date	Depth	Lab	Picric Acid
					mg/kg
B9-HA1-1-000	HA01	5/3/94	0.5	ASC	<0.25
B9-HA1-1-005	HA01	5/3/94	5	ASC	<0.25
B9-HA2-1-000	HA01	5/3/94	0.5	ASC	<0.25
B9-HA1-2-000	HA02	5/3/94	0.5	ASC	<0.25
B9-HA1-2-005	HA02	5/3/94	5	ASC	<0.25
B9-HA1-3-000	HA03	5/3/94	0.5	ASC	<0.25
B9-HA1-3-005	HA03	5/3/94	5	ASC	<0.25
B9-HA1-4-000	HA04	5/3/94	0.5	ASC	<0.25
B9-HA1-4-005	HA04	5/3/94	5	ASC	<0.25
B9-HA1-5-000	HA05	5/3/94	0.5	ASC	<0.25
B9-HA1-5-005	HA05	5/3/94	5	ASC	<0.25
B9-HA2-5-000	HA05	5/3/94	0.5	ASC	<0.25
B9-CPS1-1-019	CPS01	5/22/94	19	ASC	<0.25
B9-CPS1-1-025	CPS01	5/22/94	25	ASC	<0.25
B9-CPS1-2-021	CPS02	5/22/94	21	ASC	<0.25

Analyses	15
Detections	0
Minimum Concentration	0
Maximum Concentration	0

HWAD - PCG
HWAD - PCG Hits

Notes:

NA = Not analyzed

NE = Not established

Zero values listed for maximum and minimum concentrations indicate a nondetect value for that analyte.

pH
Method 9045 (ASC)

Sample ID	Location ID	Sample Date	Depth	Lab	pH
					S.U.
B9-HA1-1-000	HA01	5/3/94	0.5	ASC	8.3
B9-HA1-1-005	HA01	5/3/94	5	ASC	7.4
B9-HA2-1-000	HA01	5/3/94	0.5	ASC	8.2
B9-HA1-2-000	HA02	5/3/94	0.5	ASC	7.6
B9-HA1-2-005	HA02	5/3/94	5	ASC	9.3
B9-HA1-3-000	HA03	5/3/94	0.5	ASC	7.5
B9-HA1-3-005	HA03	5/3/94	5	ASC	9.2
B9-HA1-4-000	HA04	5/3/94	0.5	ASC	8.7
B9-HA1-4-005	HA04	5/3/94	5	ASC	6.6
B9-HA1-5-000	HA05	5/3/94	0.5	ASC	8.2
B9-HA1-5-005	HA05	5/3/94	5	ASC	6.7
B9-HA2-5-000	HA05	5/3/94	0.5	ASC	8.2
B9-CPS1-1-019	CPS01	5/22/94	19	ASC	8
B9-CPS1-1-025	CPS01	5/22/94	25	ASC	8.2
B9-CPS1-2-021	CPS02	5/22/94	21	ASC	7.8

Analyses	15
Detections	15
Minimum Concentration	6.6
Maximum Concentration	9.3

HWAD - PCG
HWAD - PCG Hits

Notes:

NA = Not analyzed

NE = Not established

Zero values listed for maximum and minimum concentrations indicate a nondetect value for that analyte.

Appendix D

SWMU B-09

Confirmation Samples

Applied P & Ch Laboratory
 13760 Magnolia Ave. Chino CA 91710
 Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A4-SMB17D-3002-P 99-04966-7	A4-SMB17D-3003-P 99-04966-8
NITROAROMATICS AND NITROAMINES					
Dilution Factor				10	100
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<2.0	<20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	2J	<20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<2.5	<25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	2J	<25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<2.5	<25
HMX	8330	mg/kg	0.25	<2.5	<25
NITROBENZENE	8330	mg/kg	0.25	<2.5	<25
3-NITROTOLUENE	8330	mg/kg	0.25	<2.5	<25
RDX	8330	mg/kg	0.25	5.0	<25
TETRYL	8330	mg/kg	0.25	<2.5	<25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	41	40
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	78	410
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<2.5	<25
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<2.5	<25
Component Analyzed	Method	Unit	PQL	Analysis Result	
				A4-SMB09-P3-GS003-P 99-04966-9	A4-SMB09-P3-GS004-P 99-04966-10
MOISTURE	ASTM-D2216	%Moisture	0.5	0.7	0.8
NITROAROMATICS AND NITROAMINES					
Dilution Factor				5	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	0.9J	0.61
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	0.7J	0.69
1,3-DINITROBENZENE	8330	mg/kg	0.25	<1.3	<0.25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<1.3	0.1J
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<1.3	<0.25
HMX	8330	mg/kg	0.25	24	10.1
NITROBENZENE	8330	mg/kg	0.25	<1.3	<0.25
3-NITROTOLUENE	8330	mg/kg	0.25	<1.3	<0.25
RDX	8330	mg/kg	0.25	69	12.6
TETRYL	8330	mg/kg	0.25	<1.3	<0.25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	1.5	0.51
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	5.3	1.5
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<1.3	<0.25
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<1.3	<0.25
Component Analyzed	Method	Unit	PQL	Analysis Result	
				A4-SMB09-P3-GF001-P 99-04966-11	A4-SMB09-P3-GS001-P 99-04966-12
MOISTURE	ASTM-D2216	%Moisture	0.5	1	0.7

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APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A4-SMB09-P3-GF001-P 99-04966-11	A4-SMB09-P3-GS001-P 99-04966-12
NITROAROMATICS AND NITROAMINES					
Dilution Factor				1	5
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	0.59	<1.0
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	0.67	<1.0
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	<1.3
2,4-DINITROTOLUENE	8330	mg/kg	0.25	0.1J	<1.3
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<1.3
HMX	8330	mg/kg	0.25	4.8	8.7
NITROBENZENE	8330	mg/kg	0.25	<0.25	<1.3
3-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<1.3
RDX	8330	mg/kg	0.25	5.58	35
TETRYL	8330	mg/kg	0.25	<0.25	<1.3
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	0.27	0.7J
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	0.66	0.8J
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.25	<1.3
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.25	<1.3

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A4-SMB09-P3-GS002-P 99-04966-13	A4-WR001C-C001-P 99-04966-14
MOISTURE					
ASTM-D2216		%Moisture	0.5	0.7	34.0
NITROAROMATICS AND NITROAMINES					
Dilution Factor				10	50
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	2J	<15
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	1J	<15
1,3-DINITROBENZENE	8330	mg/kg	0.25	<2.5	<19
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<2.5	<19
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<2.5	<19
HMX	8330	mg/kg	0.25	5.6	31
NITROBENZENE	8330	mg/kg	0.25	<2.5	<19
3-NITROTOLUENE	8330	mg/kg	0.25	<2.5	<19
RDX	8330	mg/kg	0.25	19	240
TETRYL	8330	mg/kg	0.25	<2.5	<19
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<2.5	8J
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<2.5	5J
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<2.5	<19
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<2.5	<19

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A4-WR001C-C002-CC001-P 99-04966-15	A4-WR001C-C003-CC001-P 99-04966-16
MOISTURE	ASTM-D2216	%Moisture	0.5	30.2	28.4

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APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A4-SMB09-P1-GF001-P 99-03985-15	A4-SMB09-P1-GS001-P 99-03985-16
NITROAROMATICS AND NITROAMINES (a)					
Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
HMX	8330	mg/kg	0.25	0.30	0.2J
NITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25
3-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
RDX	8330	mg/kg	0.25	0.2J	<0.25
TETRYL	8330	mg/kg	0.25	<0.25	<0.25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A4-SMB09-P1-GS002-P 99-03985-17	A4-SMB09-P1-GS003-P 99-03985-18
MOISTURE, PERCENT IN SOIL ASTM-D2216					
MOISTURE, PERCENT IN SOIL	ASTM-D2216	%Moisture	0.5	1.3	0.8
NITROAROMATICS AND NITROAMINES (a)					
Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	0.1J
HMX	8330	mg/kg	0.25	<0.25	<0.25
NITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25
3-NITROTOLUENE	8330	mg/kg	0.25	<0.25	0.08J
RDX	8330	mg/kg	0.25	<0.25	<0.25
TETRYL	8330	mg/kg	0.25	<0.25	<0.25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A4-SMB09-P1-GS004-P 99-03985-19	A4-SMB09-P1-GS005-P 99-03985-20
MOISTURE, PERCENT IN SOIL ASTM-D2216					
MOISTURE, PERCENT IN SOIL	ASTM-D2216	%Moisture	0.5	0.4J	1.6

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APCL Analytical Report**Analysis Result**

Component Analyzed	Method	Unit	PQL	A4-SMB09-P1-GS004-P 99-03985-19	A4-SMB09-P1-GS005-P 99-03985-20
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NITROAROMATICS AND NITROAMINES (a)

Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
HMX	8330	mg/kg	0.25	0.80	0.28
NITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25
3-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
RDX	8330	mg/kg	0.25	<0.25	<0.25
TETRYL	8330	mg/kg	0.25	<0.25	<0.25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25

Analysis Result

Component Analyzed	Method	Unit	PQL	A4-SMB09-P2-GF001-P 99-03985-21	A4-SMB09-P3-GS001-P 99-03985-22
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MOISTURE, PERCENT IN SOIL ASTM-D2216 %Moisture 0.5 0.6 0.7

Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	8.7	0.4
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	3.7	0.70
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	0.1J
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
HMX	8330	mg/kg	0.25	4.0	2.7
NITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25
3-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25
RDX	8330	mg/kg	0.25	1.4	5.76
TETRYL	8330	mg/kg	0.25	<0.25	<0.25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	0.2J	0.76
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	3.4	0.58
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25

Analysis Result

Component Analyzed	Method	Unit	PQL	A4-SMB09-P2-GS002-P 99-03985-23	A4-SMB09-P2-GS003-P 99-03985-24
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MOISTURE, PERCENT IN SOIL	ASTM-D2216	%Moisture	0.5	0.7	0.8
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APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A4-SMB09-P2-GS003-P 99-03985-23	A4-SMB09-P2-GS003-P 99-03985-24

NITROAROMATICS AND NITROAMINES (a)

Dilution Factor

4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	1	1
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	< 0.20	1.4
1,3-DINITROBENZENE	8330	mg/kg	0.25	< 0.20	1.3
2,4-DINITROTOLUENE	8330	mg/kg	0.25	< 0.25	< 0.25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	< 0.25	0.23
HMX	8330	mg/kg	0.25	1.5	< 0.25
NITROBENZENE	8330	mg/kg	0.25	< 0.25	< 0.25
3-NITROTOLUENE	8330	mg/kg	0.25	6.39	5.00
RDX	8330	mg/kg	0.25	< 0.25	< 0.25
TETRYL	8330	mg/kg	0.25	0.37	0.21
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	0.28	0.98
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	< 0.25	< 0.25
2/4-NITROTOLUENE	8330	mg/kg	0.25	< 0.25	

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A4-SMB09-P2-GS004-P 99-03985-25	

MOISTURE, PERCENT IN SOIL **ASTM-D2216****NITROAROMATICS AND NITROAMINES (a)**

Dilution Factor

4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	< 0.20	
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	< 0.20	
1,3-DINITROBENZENE	8330	mg/kg	0.25	< 0.25	
2,4-DINITROTOLUENE	8330	mg/kg	0.25	< 0.25	
2,6-DINITROTOLUENE	8330	mg/kg	0.25	< 0.25	
HMX	8330	mg/kg	0.25	0.78	
NITROBENZENE	8330	mg/kg	0.25	< 0.25	
3-NITROTOLUENE	8330	mg/kg	0.25	0.67	
RDX	8330	mg/kg	0.25	< 0.25	
TETRYL	8330	mg/kg	0.25	0.21	
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	< 0.25	
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	< 0.25	
2/4-NITROTOLUENE	8330	mg/kg	0.25	< 0.25	

PQL: Practical Quantitation Limit. MDL: Method Detection Limit.

N.D.: Not Detected or less than the practical quantitation limit.

J: Reported between PQL and MDL.

† All results are reported on dry basis for soil samples.

Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0.

(a) Positive results had been confirmed by second column.

CRDL: Contract Required Detection Limit

"--": Analysis is not required.

Respectfully submitted,

Dominic Lai
Laboratory Director
Applied P & Ch Laboratory

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

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Submitted to:

Tetra Tech, Inc. (San Francisco)

Attention: Roy Roenbeck

180 Howard St. Ste. 250

San Francisco CA 94105

Tel: (415)974-1221 Fax: (415)974-5914

APCL Analytical Report

Service ID #: 801-992443

Received: 03/12/99

Collected by: GM/FH

Extracted: 03/15/99

Collected on: 03/09/99

Tested: 03/16-17/99

Reported: 03/24/99

Sample Description: Soil from Hawthorne,NV

Project Description: HAWD-101

Analysis of Soil Samples

Component Analyzed	Method	Unit	PQL	Analysis Result			
				CS17-BB-01 99-02443-1	CS09-BB-01 99-02443-2	CS17-BB-01 99-02443-3	CS17-BB-01 99-02443-4
MOISTURE	ASTM-D2216	%Moisture	0.5	7.0	1.4	2.8	4.1
NITROAROMATICS AND NITROAMINES ^(a)				1	1	1	1
Dilution Factor							
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	0.3	<0.20	<0.21	<0.21
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	0.4	<0.20	<0.21	<0.21
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.27	<0.25	<0.26	<0.26
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.27	<0.25	<0.26	<0.26
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.27	<0.25	<0.26	<0.26
HMX	8330	mg/kg	0.25	0.82	0.49	0.36	0.20
NITROBENZENE	8330	mg/kg	0.25	<0.27	<0.25	<0.26	<0.26
3-NITROTOLUENE	8330	mg/kg	0.25	<0.27	<0.25	<0.26	<0.26
RDX	8330	mg/kg	0.25	1.0	0.87	1.1	1.6
TETRYL	8330	mg/kg	0.25	<0.27	<0.25	<0.26	<0.26
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	1.7	<0.25	1.3	1.4
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	0.93	<0.25	2.4	0.43
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.27	<0.25	<0.26	<0.26

Component Analyzed	Method	Unit	PQL	Analysis Result			
				CS17-SA-01 99-02443-5	CS17-SA-01 99-02443-6	CS09-SA-01 99-02443-7	CS17-SA-02 99-02443-8
MOISTURE	ASTM-D2216	%Moisture	0.5	4.1	2.5	1.1	2.0
NITROAROMATICS AND NITROAMINES ^(a)				1	100	1	1
Dilution Factor							
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.21	<21	<0.20	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.21	<21	<0.20	<0.20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.26	<26	<0.25	<0.25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<26	<0.25	<0.25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.26	<26	<0.25	0.91
HMX	8330	mg/kg	0.25	0.21	<26	<0.25	<0.25
NITROBENZENE	8330	mg/kg	0.25	<0.26	<26	<0.25	<0.25
3-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<26	<0.25	3.3
RDX	8330	mg/kg	0.25	1.4	<26	<0.25	<0.25
TETRYL	8330	mg/kg	0.25	<0.26	<26	<0.25	17.7
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	1.3	<26	<0.25	5.6
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	0.52	1480	<0.25	<0.25
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.26	<26	<0.25	<0.25

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Component Analyzed	Method	Unit	PQL	Analysis Result			
				CS09-SA-02 99-02443-9	CS17-SW-01 99-02443-10	CS17-SW-02 99-02443-11	CS17-SW-03 99-02443-12
MOISTURE	ASTM-D2216	%Moisture	0.5	1.2	2.3	6.3	24
NITROAROMATICS AND NITROAMINES ^(a)				1	1	1	1
Dilution Factor							
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20	<0.21	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20	<0.21	<0.20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26
HMX	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26
NITROBENZENE	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26
3-NITROTOLUENE	8330	mg/kg	0.25	<0.25	0.57	<0.27	0.55
RDX	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26
TETRYL	8330	mg/kg	0.25	<0.25	0.59	<0.27	4.8
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.26	<0.27	0.80
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.26	<0.27	<0.26

Component Analyzed	Method	Unit	PQL	Analysis Result			
				CS17-SW-04 99-02443-13	CS31-BB-01 99-02443-14	CS31-BB-02 99-02443-15	CS31-SA-07 99-02443-16
MOISTURE	ASTM-D2216	%Moisture	0.5	1.1	1.1	5.6	1.9
NITROAROMATICS AND NITROAMINES ^(a)				1	1	1	1
Dilution Factor							
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20	<0.21	<0.20
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.20	<0.20	<0.21	<0.20
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	0.39	<0.25
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
HMX	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
NITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
3-NITROTOLUENE	8330	mg/kg	0.25	0.39	<0.25	<0.26	<0.25
RDX	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
TETRYL	8330	mg/kg	0.25	0.83	<0.25	<0.26	<0.25
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.25	<0.25	0.65	<0.25
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25
2/4-NITROTOLUENE	8330	mg/kg	0.25	<0.25	<0.25	<0.26	<0.25

Component Analyzed	Method	Unit	PQL	Analysis Result			
				CS31-SA-02 99-02443-17	CS31-SA-03 99-02443-18	CS31-SA-04 99-02443-19	CS31-SA-05 99-02443-20
MOISTURE	ASTM-D2216	%Moisture	0.5	0.8	1.7	2.5	1.1

SWMU B-09

Compost Samples

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Component Analyzed	Method	Unit	PQL	Analysis Result	
				A3-WR005B-C001-CC002-P 99-04686-7	A3-WR005B-C002-CC002-P 99-04686-8

NITROAROMATICS AND NITROAMINES

Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	0.99	<0.26
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.25	<0.26
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.31	<0.32
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.31	<0.32
2,6-DINITROTOLUENE	8330	mg/kg	0.25	5.3	0.46
HMX	8330	mg/kg	0.25	<0.31	<0.32
NITROBENZENE	8330	mg/kg	0.25	<0.31	<0.32
3-NITROTOLUENE	8330	mg/kg	0.25	<0.31	0.3J
RDX	8330	mg/kg	0.25	<0.31	<0.32
TETRYL	8330	mg/kg	0.25	<0.31	<0.32
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.31	<0.32
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.31	<0.32
2-NITROTOLUENE ^(a)	8330	mg/kg	0.25	<0.31	<0.32
4-NITROTOLUENE ^(a)	8330	mg/kg	0.25	<0.31	<0.32

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A3-WR005B-C003-CC002-P 99-04686-9	A3-WR005B-C004-CC002-P 99-04686-10

MOISTURE, PERCENT IN SOIL	ASTM-D2216	%Moisture	0.5	20.1	18.3
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NITROAROMATICS AND NITROAMINES

Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	0.4	<0.24
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	0.2J	<0.24
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.31	<0.31
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.31	<0.31
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.31	<0.31
HMX	8330	mg/kg	0.25	2.0	0.2J
NITROBENZENE	8330	mg/kg	0.25	<0.31	<0.31
3-NITROTOLUENE	8330	mg/kg	0.25	<0.31	<0.31
RDX	8330	mg/kg	0.25	0.2J	<0.31
TETRYL	8330	mg/kg	0.25	<0.31	<0.31
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.31	<0.31
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	0.08J	<0.31
2-NITROTOLUENE ^(a)	8330	mg/kg	0.25	<0.31	<0.31
4-NITROTOLUENE ^(a)	8330	mg/kg	0.25	<0.31	<0.31

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A3-WR006B-C001-CC002-P 99-04686-11	A3-WR006B-C002-CC002-P 99-04686-12

MOISTURE, PERCENT IN SOIL	ASTM-D2216	%Moisture	0.5	17.4	17.8
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Component Analyzed	Method	Unit	PQL	Analysis Result	
				A3-WR006B-C001-CC002-P 99-04686-11	A3-WR006B-C002-CC002-P 99-04686-12

NITROAROMATICS AND NITROAMINES

Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.24	<0.24
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.24	<0.24
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.30	<0.30
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.30	<0.30
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.30	<0.30
HMX	8330	mg/kg	0.25	<0.30	<0.30
NITROBENZENE	8330	mg/kg	0.25	<0.30	<0.30
3-NITROTOLUENE	8330	mg/kg	0.25	<0.30	<0.30
RDX	8330	mg/kg	0.25	<0.30	<0.30
TETRYL	8330	mg/kg	0.25	<0.30	<0.30
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.30	<0.30
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.30	<0.30
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.30	<0.30
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.30	<0.30

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A3-WR006B-C003-CC002-P 99-04686-13	A3-WR006B-C004-CC002-P 99-04686-14

MOISTURE, PERCENT IN SOIL ASTM-D2216 %Moisture 0.5 19.3 20.2

NITROAROMATICS AND NITROAMINES

Dilution Factor				1	1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.25	<0.25
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	<0.25	<0.25
1,3-DINITROBENZENE	8330	mg/kg	0.25	<0.31	<0.31
2,4-DINITROTOLUENE	8330	mg/kg	0.25	<0.31	<0.31
2,6-DINITROTOLUENE	8330	mg/kg	0.25	<0.31	<0.31
HMX	8330	mg/kg	0.25	0.84	<0.31
NITROBENZENE	8330	mg/kg	0.25	<0.31	<0.31
3-NITROTOLUENE	8330	mg/kg	0.25	<0.31	<0.31
RDX	8330	mg/kg	0.25	<0.31	<0.31
TETRYL	8330	mg/kg	0.25	<0.31	<0.31
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	<0.31	<0.31
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	<0.31	<0.31
2-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.31	<0.31
4-NITROTOLUENE (a)	8330	mg/kg	0.25	<0.31	<0.31

Component Analyzed	Method	Unit	PQL	Analysis Result	
				A3-WR006B-C005-CC002-P 99-04686-15	
MOISTURE, PERCENT IN SOIL	ASTM-D2216	%Moisture	0.5	22.0	

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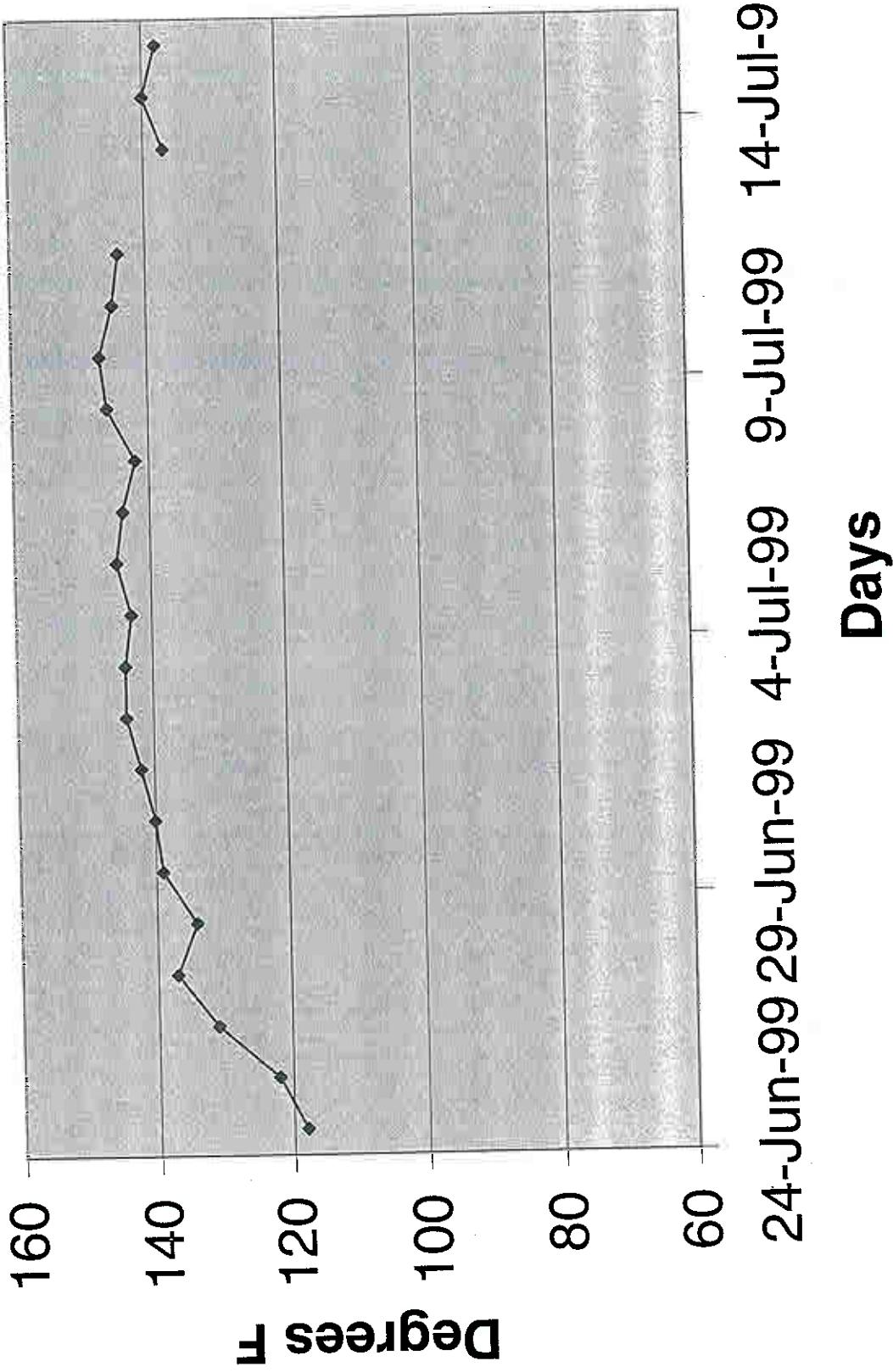
Component Analyzed	Method	Unit	PQL	Analysis Result A3-WR006B-C005CC002-P 99-04686-15
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NITROAROMATICS AND NITROAMINES					
Dilution Factor					1
4-AMINO-2,6-DINITROTOLUENE	8330	mg/kg	0.2	< 0.26	
2-AMINO-4,6-DINITROTOLUENE	8330	mg/kg	0.2	< 0.26	
1,3-DINITROBENZENE	8330	mg/kg	0.25	< 0.32	
2,4-DINITROTOLUENE	8330	mg/kg	0.25	< 0.32	
2,6-DINITROTOLUENE	8330	mg/kg	0.25	< 0.32	
HMX	8330	mg/kg	0.25	< 0.32	
NITROBENZENE	8330	mg/kg	0.25	< 0.32	
3-NITROTOLUENE	8330	mg/kg	0.25	< 0.32	
RDX	8330	mg/kg	0.25	2.5	
TETRYL	8330	mg/kg	0.25	< 0.32	
1,3,5-TRINITROBENZENE	8330	mg/kg	0.25	< 0.32	
2,4,6-TRINITROTOLUENE	8330	mg/kg	0.25	< 0.32	
2-NITROTOLUENE (a)	8330	mg/kg	0.25	< 0.32	
4-NITROTOLUENE (a)	8330	mg/kg	0.25	< 0.32	

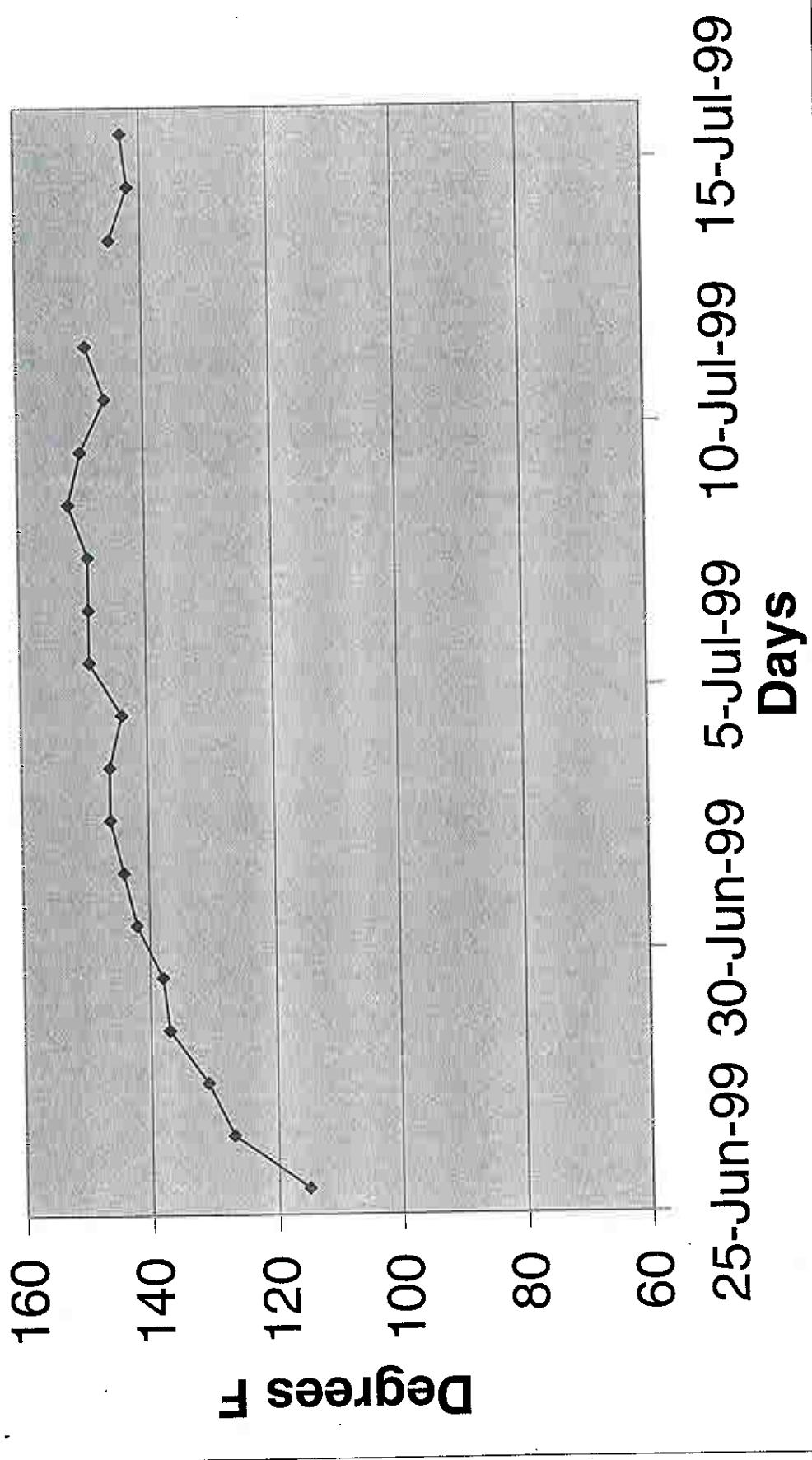
Analysis Result					
Component Analyzed	Method	Unit	PQL	A1-SMB16-P1-GF001-P 99-04686-1	A1-SMB16-P1-GS001-P 99-04686-2
Dilution Factor				1	1
PICRIC ACID	M8330	mg/kg	2.5	< 2.5	< 2.5

Analysis Result					
Component Analyzed	Method	Unit	PQL	A1-SMB16-P1-GS002-P 99-04686-3	A1-SMB16-P1-GS003-P 99-04686-4
Dilution Factor				1	1
PICRIC ACID	M8330	mg/kg	2.5	< 2.5	< 2.5

Windrow 5B Temperatures



Windrow 6B Temperatures



Appendix E



B09, Plan view of all pits @ SWMU.



B09, View of three pits of SWMU B09.



SWMUB- 09 February 2000